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Cleanings in Bee Culture



A Bee Experiment Station in Switzerland.

The A. I. Root Co., Medina, O., U. S. A.

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Vol. XXXVI

January 1, 1908

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No. 1

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I will buy your **HONEY AND BEESWAX**. I pay **Cash on Delivery**; or if you are in **need of honey**, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of **extracted or comb honey**. I guarantee its purity.

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If you have **Sweet Clover**, state if yellow or white, hulled or unhulled, also quantity and lowest price.

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Honey Markets.

GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsold by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct, to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent) cartage, and freight will be deducted, and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

ZANESVILLE.—As is usual at the holiday season, the demand for honey is very slack. There is plenty of fancy white alfalfa comb on this market, which brings 18 to 19, wholesale; practically nothing else offered, save a little dark-looking fall honey brought in by farmers. There is almost no demand for extracted except in glass retail packages. The local financial condition is not far from normal, and this would indicate an increased demand for honey early in the new year. Beeswax quiet, and supply slightly in excess of demand. For good yellow wax would pay 30 f. o. b. here in exchange for bee supplies.

EDMUND W. PEIRCE,

Dec. 19. 136 West Main St., Zanesville, O.

KANSAS CITY.—The demand for both comb and extracted continues slow; receipts fair, but don't look for much improvement until after the holidays. We quote No. 1 white comb, 24-section, \$3.25; No. 2, white and amber, \$2.75 to \$3.00; extracted white, 8 to 8½; extracted amber, 7 to 7½. Beeswax, 25 to 27.

C. C. CLEMONS & Co.,
Kansas City, Mo.

Dec. 21.

SCHENECTADY.—As usual during the holiday season, honey market dull and but very little demand. Present prices would have to be shaded to induce sale. Prices later on will depend on the financial situation to a great extent, and the number of unemployed honey-consumers.

C. MACCULLOCH,
Schenectady, N. Y.

Dec. 18.

INDIANAPOLIS.—Demand for comb honey seems to be limited, and very little is now being offered by producers. Evidently those who disposed of their crop early were most fortunate. Jobbers are offering 15 and 16, delivered. Extracted honey is in better demand, especially best grades, and jobbers are paying 9 cents, delivered. Beeswax is in fair demand, and brings 28 cents cash, or 30 in exchange for merchandise.

WALTER S. POWDER,
Indianapolis, Ind.

Dec. 17.

ST. LOUIS.—Since our last, of Dec. 9th, there is no change in our honey market. The receipts, however, have been very small, and this market is almost bare of extracted honey. There is enough comb honey here to meet the small demand. We quote fancy comb honey, white, 16 to 17; No. 1, 15 to 16; amber color, 14 to 16, according to quality and condition. Broken and defective honey cells at considerably less. Extracted white, in cans, nominal at 8½ to 9; amber, in cans, 8 to 8½; in barrels and half-barrels, ¾ to 1 per lb., less. Beeswax, 28 for choice pure. All impure and inferior, lower.

R. HARTMANN PRODUCE CO.,
St. Louis, Mo.

Dec. 19.

CHICAGO.—The market is quiet, very little being sold; prices are same as last quoted. Choice grades only are wanted; with the holidays over we may look for more activity in the honey line. Beeswax, 28 to 30.

R. A. BURNETT & Co.,
199 S. Water St., Chicago, Ill.

Dec. 18.

SAN FRANCISCO.—Honey moves very slowly at present, as high prices have curtailed the demand. With light offerings and few arrivals of new stock, prices are firmly maintained. Light amber, extracted, 7 to 7½; water-white comb, 16 to 17; white comb, 15; water white, extracted, 8 to 8½.—*Pacific Rural Press.*

Dec. 21.

DENVER.—The local demand for comb honey is light at present, and we do not expect much improvement until after the holidays. We quote No. 1 white, per case of 24 sections, \$3.25 to \$3.50; light amber and No. 2, \$2.75 to \$3.00. We now have a good stock of very fine extracted honey which we offer at 9 to 10 cts. for strictly white alfalfa; light amber, 8 to 9; strained amber honey, 6½ to 7½. We are paying 22 to 24 for clean yellow beeswax.

THE COLORADO HONEY PRODUCERS' ASS'N.,
F. RAUCHFUSS, Mgr.

Dec. 10.

BUFFALO.—The demand for honey is very slow. The quantity in our market is small; and if the demand were fair for a short time it would soon clean up what is here. We quote fancy white comb, 16 to 17; No. 1 ditto, 15 to 17; No. 2 ditto, 13 to 14; No. 1 buckwheat, 11 to 12½; No. 2, 9 to 11; No. 1 white extracted, 8 to 9; ditto dark, 7 to 7½. Beeswax, 30 to 35.

Dec. 11.

W. C. TOWNSEND.

ST. PAUL.—Fancy white clover, new, per lb., 18; strained, in 60-lb. cans, per lb., 10.

W. H. PATTON,
Sec. Bd. of Trade, St. Paul, Minn.

Dec. 10.

WHAT HAS MUTH GOT NOW?

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Orange-blossom Honey.

Genuine
Black-sage Honey.

Genuine
White-clover Honey.

(All in crates of two 60-lb. cans each.)

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You better write for prices; this honey is too good to stay long on our hands.

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Extracted Honey Wanted

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241 BULL ST. SAVANNAH, GA.

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1873.
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32,000.
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monthly.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests.

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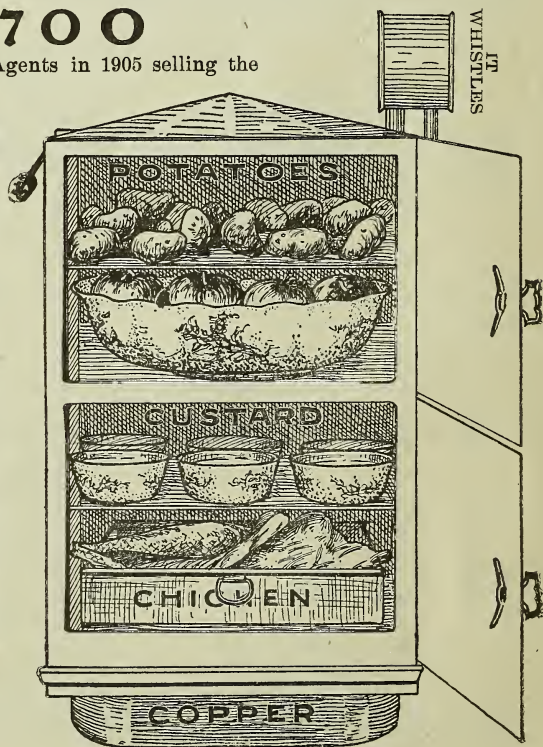
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Just now I have about 200 complete sets left of the back numbers for 1907 that I will send free, as long as they last, to new subscribers for 1908. The information in these issues is just as valuable now as when first published. Send \$1.00 and you will get the *Review* for 1907 and 1908. This will be only 50 cents a year, and, when your time is out, if you don't care to renew, we can part as friends, and no harm done. For \$2.00 you can get the *Review* for 1907 and 1908 and the book *Advanced Bee Culture*. Book alone, \$1.20.

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THE A. I. ROOT COMPANY
MEDINA, OHIO

Gleanings in Bee Culture

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Editor

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Editor Home Department

H. H. ROOT
Ass't Editor

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It is time for us to remind our friends who have large apiaries who depend on outside help not to put off securing this help until the season is immediately before us. Mr. H. T. Chrisman, who carried a six-line want ad. in December 1st GLEANINGS, writing under date of December 10th says: "I have been flooded with applications." This shows the value of GLEANINGS; but we caution you not to wait until April or May and then expect to get help so readily. This is the time to send in your want ads.

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The best spade is a poor hole-digger, and the old-fashioned double-spade diggers and augers are not much better. But post-hole digging, instead of being tiresome and slow, is now easily and rapidly done by the use of a most remarkable labor-saving post-hole and well auger, made by Iwan Bros.—a name that guarantees quality. The bowl of this practical auger consists of two interlocking crucible-steel blades, scientifically shaped so that they sink themselves in any kind of soil almost without any pressure. Three full turns do it. Then, in pulling them out, there is not the slightest resistance from suction. These strong blades are attached to a malleable arch with a strong handle of convenient length. These augers are made in all sizes from 3 to 14 inches. A more simple and practical hole-auger could not be made. Iwan Bros., Streator Ill., will be glad to give you complete information. Write them to-day, and mention this paper.

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M'CLURE'S MAGAZINE.

In making up your list of periodicals for the coming year we wish to say a word in season for the above magazine. We believe it to be, in a very true sense, the friend and benefactor of the plain people of this nation. Its exposure of monstrous frauds, both financial and political, is deserving of the highest praise. It could probably have made immense sums of money by concealing the truth, but it chose the straight course of honest duty. Such a journal deserves success.

THE GERMAN NURSERIES.

If you want trees and plants that are extra hardy we think the stock grown at the German Nurseries, Beatrice, Nebraska, will suit the most exacting. It is right in the blizzard region where, unless plants are very vigorous and hardy, they can not survive. The proprietor of these nurseries is Mr. Carl Sonderegger, a very experienced German nurseryman who started in business in 1886, since which time he has built up a large trade in nursery and plant stock. He knows just what will grow in our cold north-western States, where the peculiar winter conditions render the selection of trees a subject for expert knowledge, such as only a few possess. Many thrifty persons have lost money by ordering trees from irresponsible agents and others who sold them stock by no means adapted to the rigorous conditions of the West. We believe any buyer of trees would be safe in ordering from Mr. Sonderegger.

BIG-EARED CORN.

If you are interested in corn, the advertisement of Ratekin's Seed House, of Shenandoah, Iowa, will appeal to you. This house is in the center of a great corn region where the farmers take the greatest interest in the improvement and amelioration of the corn-plant. It is not far away, either, from the home of Professor Holden, the great corn expert who has so enthused the farmers of Iowa that each one is laboring to increase the value of the corn crop of the State. Any of our readers who are interested in corn culture ought to get in touch with

Ratekin if they are anxious to improve the crop in their own immediate locality. In addition to securing fine seed we believe they will also get excellent advice on corn culture (if they desire it). Their catalog, which may be had free for the asking is quite a treatise on corn and other useful farm seeds on which great industries rest. It is not a pretty book for the children, but a valuable monitor on farm seeds and farm crops for money-makers.

WEAVING RUGS AT HOME.

Recently there has been a revival of home handicrafts in various parts of the country. This is due to various causes, one of which is a great desire on the part of many to have something original, and at the same time durable and substantial. It is a remarkable fact that the fine rugs and carpets on the floors of rich men's mansions are home-made articles. These are not made in factories, as is supposed by many; on the contrary, they are the product of humble homes in Turkey, Syria, Persia, and India, where factories are unknown.

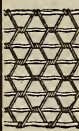
This being so, we feel certain many of our readers will be much interested in the advertisement of the Deen Loom Co., Harlan, Iowa, on the back cover page of this journal. We think their announcement will have a special interest to GLEANINGS readers, because many of them are handy men and women who would soon learn how to use a weaver's loom if they had one.

It is well known that the finest and most expensive fabrics are woven on what seems ridiculously simple apparatus. We believe that success in this line lies largely in the taste and skill of the individual worker rather than on intricate and expensive machinery. The Deen Loom Co. are so thoroughly convinced of the intrinsic value of the loom they manufacture that they are now accepting orders on the installment plan of payment. If the field where you live is not occupied already by some weaver, there is a chance for you to do some business with your neighbors in making rugs for them. The company takes especial pains to give its customers all necessary advice in learning to operate a loom, and is happy to hear their customer has been successful. They send a nice catalog on request.

A SUBSCRIBER'S ORDER for FENCING.


It is quite amusing to us when talking to a prospective advertiser to hear him say that GLEANINGS will probably do well enough for bee-supply advertisers, but he doubts whether it would do for his particular product. Time was when we had to use a good many arguments to show that GLEANINGS readers were good purchasers in hundreds of other lines, but now we seldom hear the above comment. Occasionally some one wholly unacquainted with GLEANINGS requires some convincing evidence. To such we submit the case of Mr. Shackelford, and a valued advertiser, Messrs. Kitselman Bros., Muncie, Ind.

COIL SPRING FENCE



Made of high carbon Steel Wire
Horse-high, Bull-strong, Chick-
en-tight. Sold direct to the
Farmer at lowest manufac-
turers prices on 30 Days Free
Trial, freight prepaid. 100 page
Catalogue and price-list free.

KITSELMAN BROS.,
Box 21 MUNCIE, IND.



The above is the advertisement which cost the advertiser during the entire season \$35.90. In the next column is the report of our subscriber whose single order was nearly ten times the amount that this advertisement cost in GLEANINGS for the entire season. Bear in mind that this is only a single order, and, according to our understanding, Messrs. Kitselman Bros. had a good many more which they trace to GLEANINGS IN BEE CULTURE.

RESULTS. If you have goods to sell, isn't it worth while to try a paper which pays others so well? Here is a single order bringing the advertiser ten times the amount of his entire account with the paper for a year. Remember, too, the case of Mr. Snyder who received orders for a thousand queens at an expenditure of \$11; also the case of Mr. Taylor, whose season's advertising cost about \$50, and he received more than \$1000 worth of business which he traced to GLEANINGS.

OTHER ADVERTISERS BESIDES KITSELMAN BROS. We have for several years carried representative advertisers such as American Steel & Wire Co.; Page Woven Wire Fence Co.; Coiled Spring Fence Co.; Brown Fence and Wire Co.; Mason Fence Co., and others.

A paper that gets results in a line like the above can not help being valuable for those advertisers who have merchandise used by agricultural, rural, and suburban classes generally. Write us if you have any doubt as to the advisability of using our columns, and learn what our experience, if any, has been with advertising similar to your own. We are not at all anxious to get an account which does not appear adapted to our paper, for we want to hold those we have from year to year and do not want to disappoint any one, and we never urge an advertiser to use our paper without feeling reasonably sure that it will pay him.

For particulars along the above lines, or regarding our rates, address

ADVERTISING DEPT. GLEANINGS IN BEE CULTURE, MEDINA, O.

Mr. Shackelford's \$330. Order.

Okolona, Ark., February 18, 1907.

THE A. I. ROOT CO.,
Medina, O.

Gentlemen:—Some days ago I gave Kitselman Bros. an order for wire fencing to the amount of \$330.84, but the fencing I have not yet received. I received a notice from them that it would have prompt attention, but this is the last I have heard from them. I mentioned that I did not hesitate to give them the order for I saw their ad. in GLEANINGS, and, of course, I think it will come up O. K. I wrote them a few days ago but have not had time to hear from them yet. I will wait ten or fifteen days, and if I do not hear from them I will write you again.

Yours truly,

GEO. SHACKELFORD.

We wrote Messrs. Kitselman Bros. in behalf of our subscriber, and they promptly advised us that, owing to the great amount of orders received about that time, there had been a little delay, but assured us that Mr. Shackelford's order would go out at once.

Note Mr. Shackelford's confidence in the advertising columns of GLEANINGS. This is representative of the feeling of our subscribers generally.

Security

For 15 years this bank has been transacting a conservative banking business, meeting all its obligations on demand.

Four per cent on savings.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system.

**WRITE FOR THE BOOKLET
TO-DAY**

Established 1892

A State Bank

Assets over \$700,000

**THE SAVINGS DEPOSIT
BANK COMPANY**

MEDINA, OHIO

An Invaluable and Necessary Work

LIPPINCOTT'S NEW GAZETTEER

A Geographical Dictionary of the World

Containing references to over 100,000 places—their population, location, and industries, compiled from the latest census returns from all countries, and other official data.

Edited by ANGELO HEILPRIN,
and LOUIS HEILPRIN

Over 2000 pages. Quarto
SHEEP \$10.00 net
HALF RUSSIA . . . \$12.50 net
Patent Index, 50 cents extra

J. B. LIPPINCOTT CO., Philadelphia

PATENTS.

Twenty-five Years' Practice.

CHARLES J. WILLIAMSON,

Second Nat'l Bank Bldg., Washington, D. C.

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co

**CUTS USED IN THIS MAGAZINE
ARE FROM
THE MUGLER ENGRAVING CO.
MUGLER BLDG. CLEVELAND, OHIO.**



Southwest Homeseekers' Excursions

First and third Tuesdays
of each month.

Tickets sold to all parts
of the Great Southwest
at rates of about one
fare plus \$2.00.

Ask for our new book,
"Santa Fe Southwest."

Address

C. L. Seagraves,
Gen'l Colonization Agt.,
1115 Railway Exchange,
Chicago.

Paint Without Oil

Remarkable Discovery that Cuts
Down the Cost of Paint Seventy-
five Per Cent.

A Free Trial Package is Mailed to Every
One Who Writes.

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powderpaint. It comes in the form of a dry powder, and all that is required is cold water to make a paint weather-proof, fire-proof, and as durable as oil paint. It adheres to any surface, wood, stone, or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 202 North St., Adams, N. Y., and he will send you a free trial package, also color-card and full information showing you how you can save a good many dollars. Write to-day

FREE!




Poultry-raising with bee-keeping makes a profitable combination as many already know. Our 116-page book, "How to Make Poultry Pay," the most beautiful work published, is now given FREE with each yearly subscription to our paper. Ask for sample copy of Xmas number, the best in the world.

Address INLAND POULTRY JOURNAL COMPANY,
15 Cord Bldg., Indianapolis, Ind.

Sections, Hives, and Foundation

always in stock for immediate shipment.

Orders sent in during the month of January, 3½ per cent discount may be deducted. This 3½ per cent is an inducement to order early, but the big profit comes next season by having supplies on hand for use when needed. :: ∴ :: ∴ :: ∴ ::

THE A. I. ROOT COMPANY
SYRACUSE,    NEW YORK

***This is the Book that will
Increase Your Fruit Profits***

MY
EXPERIENCE
AT
**FRUIT
GROWING**
BY
CHARLES A. GREEN.

**A DOLLAR
BOOK FOR
1 CENT**

High Grade Fruit Trees, Vines and Plants

Special low prices on **Plum, Apple, Peach and Dwarf Pear Trees, Roses,** also **Asparagus Roots, Currant Bushes** and other small fruits. Order trees direct from our nursery and save agent's profits and **half your money.**

Everything you want for Orchard, Garden, Lawn or Park. Send to-day for Green's Dollar Book on Fruit Growing, also for our Fruit Catalog, and a copy of Green's Fruit Magazine, **all a gift to you.**

GREEN'S SAMPLE OFFER One El-
berta
Peach Tree, one Red Cross Currant Bush,
one C. A. Green New White Grape
Vine, one Live-Forever Rose Bush, all
delivered at your house by mail for
25 cents.

Plum Trees \$6.00 per hundred.

GREEN'S NURSERY CO.

Rochester, New York

Box



What's the Matter With Hilton?

WHY, HE HAS A LOT OF SUPPLIES HE WANTS TO LET YOU HAVE WITHIN THE NEXT SIXTY DAYS AT A DISCOUNT, TO MAKE ROOM FOR THE NEXT SEASON'S GOODS. JUST SEND A LIST OF WHAT YOU WANT AND GET ESTIMATE. IF YOU HAVEN'T HIS FORTY-PAGE ILLUSTRATED CATALOG, SEND FOR IT AT ONCE.

CASH OR SUPPLIES FOR
BEESWAX AT ALL TIMES

GEORGE E. HILTON
FREMONT, :: :: MICHIGAN

TRANSPARENT PAPER WRAPPERS FOR COMB HONEY.

Described in full in GLEANINGS, December 1, page 1499. Makes it look more attractive and increases selling price. Any one can apply it and get 2 to 4 cts. more per pound, and it costs only a fraction of a cent per section.

Price \$3.25 per thousand sheets,
printed with name and address.

Samples free. Special prices on quantities.
H. A. SACKETT, EAST ORANGE, N. J.

WE KEEP IN STOCK IN NEW YORK CITY

a large line of **BEE-SUPPLIES** and allow a liberal discount at this season. Catalog free.

I. J. STRINGHAM,
Apiaries, Glen Cove, L.I. 105 Park Pl., N. Y. City.

Northern New York Bee-keepers.

3% PER CENT DISCOUNT.

We have a large stock of shipping-cases and feeders, and all orders for same will be filled promptly. Beeswax and old combs wanted; cash or trade; $3\frac{1}{2}\%$ discount during the month of Jan. on every thing but cases and feeders. Comb honey wanted; write stating how put up, kind, and lowest cash price deliver'd in Watertown, N. Y.
A. H. REEVES & CO., No 3 State St., WATERTOWN, N. Y.

THE DANZENBAKER SMOKER

PAT. OCT. 3, '06, JUNE 4, '07

GOLD MEDALS
St. Louis Exposition, 1904
Jamestown Exposition, 1907



IS THE BEST,
STRONGEST,
COOLEST,
CLEANEST,
CHEAPEST,
AND LARGEST
SMOKER SOLD
FOR A DOLLAR

The perforated side grate seen above holds a removable, metal, asbestos-backed fire shell, preventing burning the tin off the outer case, and deflects the air at right angles, preventing back draft to the valveless bellows. The air, passing to the back and over the top, cools and expels the smoke, fanning the burning fuel at top or side till all consumed, giving cool smoke for hours from one filling. It can't clog. No top-heavy cap to choke with soot: no valve to fall; no holes shedding sparks or hot ashes.

Four years' sales prove its success beyond a doubt, expensive dies making it uniformly perfect as possible to devise. We confidently guarantee full satisfaction or refund the price.

Price, \$1.00; 3 for \$2.50; by mail, add 25c. each

Send address of yourself and Bee friends for 8-page leaflet on "Smoker," and facts about Bees and Queens, 80 pages, free.

F. DANZENBAKER, Norfolk, Va.

1884

1908

Root's Goods always in stock

FOR YOU

Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens.
Root's Goods in Stock.

J. M. Jenkins

Wetumpka, : : Alabama

Dittmer's COMB FOUNDATION

is the best, not because we say so, but because the bees prefer it to other makes.

Dittmer's Process is Dittmer's

It has built its reputation and established its merits on its own foundation and its own name.

We make a specialty of working
wax into foundation for cash.

Write for free catalog, and prices on full line of supplies.

GUS. DITTMER CO., Augusta, Wis.

**JOBBER FOR
Central Pennsylvania
... for ...
ROOT'S GOODS**

**TRY THE DANZ.
COMB-HONEY HIVE**

The Danzenbaker hives I got last season have given splendid satisfaction; in fact, I have kept my bees outside this winter, which is seldom attempted in Manitoba, and up to date they have come through in splendid shape. I think the hive did it.

Yours truly, **LAURENCE C. CLARKE.**
Morden, Man., March 5, 1907.

Send for catalog. Best shipping facilities in the State.

Frank W. Prothero
Dubois, : : : Pennsylvania

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company

H. G. ACKLIN, MANAGER

1024 Mississippi Street, St. Paul, Minn.

At St. Louis

On a  Line

to all points in the South and Middle West.

Send for our free illustrated catalog of

Root's Bee-supplies

We sell at factory prices.
Send us a trial order.

Beeswax Wanted.

Blanke & Hauk Supply Co.

DEPT. B.

1009-11-13 Lucas Ave. **St. Louis, Mo.**

Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

North Texas Bee-keepers

will find Dallas the best point from which to purchase supplies. We have a carload of **ROOT'S GOODS IN STOCK**, and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1908 free on application. Mention GLEANINGS when you write.

**TEXAS SEED AND
FLORAL COMPANY**

Dallas, : : . Texas

**"If goods are wanted quick, send to Pouder."
Established 1889.**

Ahead of the Game Or 300 Lbs. of Honey to the Good

It has been said that "Success is made up of trifles, but success is no trifle." Is there any line of business in the world to which that saying applies more appropriately than to the bee business? Certainly we bee-men know of none. The profits of the business are affected favorably or adversely by so many seemingly trivial details that neglect of any of them often proves most unfortunate. It is time right now to order supplies for the coming season, and get into the game as Mr. Jones has wisely done. Note what he says:

*Mr. Walter S. Pouder,
Indianapolis, Ind.*

Atwater, Ill., Dec. 2, 1907.

Dear Sir:—I received my bee-supplies to-day, every thing in fine shape, and I never saw as fine a lot of supplies. I had naturally supposed that, in getting so large an order, some of the goods would be rough; but I find every article to be perfection. I am now ready for the honey harvest. The bees were ahead of me this last season, and I am satisfied that I lost 300 pounds of honey by not being prepared. That new A B C of Bee Culture is something grand.

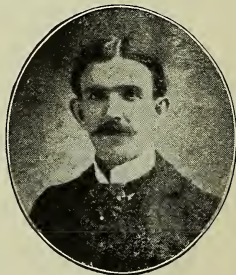
Wishing you continued success,

M. A. JONES.

Please observe, too, that I am still making a specialty of prompt deliveries and perfect shipments.

New edition of the A B C of Bee Culture now ready. By mail, \$1.50; by express or freight with other goods, \$1.25. Catalog of Bee-supplies free for the asking, and it gives prices for 1908 goods.

I buy and pay the highest market price, cash or trade, for beeswax, and have a large stock of fine white-clover honey for sale. Write for prices.



Walter S. Pouder,

513-515 Massachusetts Avenue, Indianapolis, Ind.

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Company, Medina, Ohio

E. R. ROOT, EDITOR
H. H. ROOT, ASST. ED.

A. L. BOYDEN, ADVERTISING MGR.
J. T. CALVERT, BUSINESS MGR.
A. I. ROOT, EDITOR OF HOME DEPARTMENT

Vol. XXXVI.

JANUARY 1, 1908.

No. 1



SEVERAL CASES are reported at Neukirch observation-station, Switzerland, in which "the after-swarm with the young queen issued before the prime swarm with the old queen."

ALLAN LATHAM, p. 1564, advocates ample space under frames with small entrance for wintering. Right you are, my friend, and I think the general tendency is now in that direction. I don't want less than two inches under bottom-bars all the year around.

HEARTSEASE HONEY, according to most of the bee-keepers at the Chicago convention, is rather dark, but several said that with them it was light. My assistant says, "That very white honey we had was heartsease; I don't think any thing about it; I know it was."

WINTER CONSUMPTION (outdoors, as I understand it) for the five months, November to March, reported from all the Swiss stations, averaged, for ten years, 12.5 pounds. For the four months, December to March, 11 pounds. Varied from 5 to 28 pounds, for five months.

BY THE COURTESY of Editor U. Kramer, the beloved leader of Swiss bee-keepers, I am in receipt of reports of Swiss apicultural observation-stations. These were started to the number of four more than 20 years ago, and now number more than 30. Oh for a Herr Kramer in this country to bring us abreast with little Switzerland!

I TRIED a few cases of feeding in cellar. I put a section of honey in the 2-inch space under bottom-bars, letting it touch the cluster of bees. In about 24 hours the section was cleaned out dry, although the colony had heavy winter stores; but it excites the bees, and that is probably not good for them.

[That is just the trouble. Such feeding excites the bees.—Ed.]

THE PLURAL-QUEEN SYSTEM is pronounced a success, page 1555, with perforated zinc. What advantage has it over the Wells system? That allowed two queens separated by perforated wood, and was boomed in England a few years ago, but now nothing is said about it. I can see big advantages in several unseparated queens in one hive, but with excluder I don't believe there's any thing in it. [Why? In the Wells system there was no intermingling of the bees, and each lot of bees with their queen had a separate entrance. In fact, the Wells idea was little more than a tenement hive, having two colonies, each sharing the warmth of the other. In the perforated-zinc plan the queens only are separated; but the bees mingle all together. In this respect the colony principle is more perfectly developed. As one strong colony is better than several small ones, so the perforated zinc plan ought to be better than the Wells system.—Ed.]

I DON'T BELIEVE in feeding in winter, but another Straw will show that I have tried it on a small scale by way of experiment, and after reading "What to Feed Bees in Cold Weather," p. 1556, I am moved to urge you very strongly, Mr. Editor, to try putting the feed *under* instead of on top. Of course, with a weak colony clustered high up it is not practicable; but where the bees can be induced to come down, as a fair colony will on any mild day in winter, and on any day in the cellar, feeding below has real advantages. It doesn't disturb the bees by uncovering them. A brood-comb can be put under, or Good candy in any dish, wooden or earthen; and if the candy is too soft it can make no trouble below as it can on top. "There isn't room below?" With a 2-inch bottom-board there's plenty of room, and you ought to have nothing less than 2 inches under bottom-bars for other purposes. But in any case, can't you make room below as well as above. [Your idea of putting the food under is good, in so far as it would eliminate the possibility of the food daubing the bees.

For outdoor feeding the position would be bad, but all right for the cellar.—ED.]

WM. M. WHITNEY, p. 1594, says the case of the bee-keeper is not parallel with that of the stock-raiser. That's just it, Bro. Whitney, and I'd like to see the bee-keeper have the same show as the stock-raiser. As it is now, it's all a gamble whether he may occupy a certain territory undisturbed, or be crowded out by others. I'd be willing to pay good money to be as sure of my ground as the stock-raiser is of his.

So you think, Bro. Whitney, you might grant me control if I'd hopple or clip my bees. How about fish? They're neither hoppled nor clipped, no one even pretends to own them as bees are owned, and yet legislation clearly defines territory upon which one may not encroach in catching them. Very likely you are with the large majority, but "the world do move." Many years ago I rashly advocated legal control of bee territory, and called down wrath upon my head. So far as I know I was entirely alone; at least if any one agreed with me he never said so. Now I'm not alone. Not only do many good men agree with me, but in some places sole control of bee-territory is an accomplished fact, made so by legal enactment. If it doesn't come here it's only because we are not so progressive as the people on the opposite side of the globe.

READING what is said on p. 1557, the beginner is likely to think that he should use split sections. Does GLEANINGS really advise this? [Every man has his own ideas regarding fixtures, but from the standpoint of dollars and cents, we can not see that it would pay any bee-keeper to throw away good supers, section-holders, and other appliances to adopt the split-section plan. We are not even sure that it would pay a beginner to start out with the split sections.]

After the split sections are purchased, and every thing is in readiness, foundation may be put into four at once, very rapidly. But this saving of time does not mean much of a saving of money, for such work is usually done when time is not very valuable. A better grade of comb-honey is produced if foundation is held on all four sides, but we do not believe that the split-section plan has any merit as far as the appearance is concerned over the melted-wax plan for instance, for fastening full sheets on all four sides of any style of section. The latter plan has the further advantage that no special section is needed.

Split sections cost 50 cents a thousand extra. Or, if the bee-keeper has his own foot-power saw, he may reduce this extra cost a trifle by doing his own splitting, but not enough to be worth mentioning. Now a helper's time in the winter would not ordinarily be worth 10 cents an hour. But figuring the labor at 10 cents an hour, nevertheless, we have found that the cost of putting full sheets, fastened on all four sides, in the unsplit section, is not far from 50 cents per thousand, for it takes about five hours. It will be seen that this cost is practically the same as the extra first cost of the split

sections. This means that the labor in putting foundation into split sections is an expense that may be eliminated by adopting the plan of putting full sheets in ordinary sections by means of hot wax from the wax-tube. The wax used would not cost any more than the extra wax in the larger amount of foundation needed for the split-section plan.

Finally, we have learned that there are many who object to the appearance of the split sections. Just how serious this objection would be, we can not say.—H. H. R.]



A BIG FIELD FOR BOTTLING HONEY.

A RECENT canvass made in one of our large cities showed that little or nothing was being done with the bottling trade for extracted honey. While comb honey was fairly well represented in the retail groceries they had no liquid honey to speak of. We are in a position to know that the same condition exists in many of our other large cities. It only goes to show that much more of extracted might be disposed of, and what a field there is for individual bee-keepers to bottle their own honey, especially if they are near a large city or town! This would have the effect of increasing enormously the consumption of extracted, and at the same time have a tendency to advance prices.

It is not because *good* bottled honey would not sell, but because none is offered. Before the new National pure-food law went into effect the market was injured and practically killed by adulterated goods masquerading under the name of "Pure Honey," or "Farm Honey."

Mr. Selser, of Philadelphia, Mr. Weber, of Cincinnati, Mr. Pouder, of Indianapolis, and some others, have demonstrated that pure goods will sell, and bring fairly remunerative prices. What these men have done for their respective cities others can do. There was never a better time to develop the bottling trade than now.

Always put up a fine table honey, well ripened, and then be careful not to spoil a good trade, once worked up, by putting out inferior honey. We know of one case where a bottler having a fine trade practically ruined it by putting out an off grade of pure honey. It was off in body and color, and now he can not sell honey that is first-class.

CLIPPING QUEENS VS. QUEEN-TRAPS.

It takes considerable courage to run directly counter to orthodoxy. For example,

especially in bee culture, it is generally considered the correct practice to clip queens' wings in either a comb or extracted honey-producing apiary. The argument in its favor has been mainly that it saves climbing tall trees, chasing after swarms that may run away with their queens, and last, but not least, a large amount of labor in the hiving of the swarm, because it hives itself.

Mr. R. L. Taylor, who dissents somewhat from this, recently made the statement that "clipped queens are an unmitigated nuisance in swarming time." In the *Bee-keepers' Review* for December he defends the statement on the ground that queens are liable to be superseded at any time for any cause without the knowledge of the apiarist. Where a supersedure has taken place in a hive with such queen, a swarm will issue with the new queen, and the apiarist, supposing that it will return, finds out too late that his swarm has left for parts unknown. Then he adds:

Swarms issuing with a clipped queen conduct themselves in quite a different manner from that of those having a perfect one—the latter clustering quickly and completely, as a rule, and if another swarm is out and clustered, are not liable to discover and cluster with it; consequently, they may be secured and promptly hived, while the former, in their search for their queen, hunt the premises over, and if there be a swarm out are sure to find and unite with it, and by their dilatoriness give abundance of time for other swarms to issue and unite with them. Often they will not cluster at all; and if there has already been any swarming that day, they generally make persistent efforts to adopt the hive of the former swarm; and if there have been several previous swarms the same day, only the most skillful and rapid management can prevent a general mix-up. The bees are not only persistent in their attempts to enter strange hives, but, in spite of all, are more or less successful; so that often when one, by the use of sheets and smoke, imagines he has done a good job in his efforts to defeat their attempts, he finds later that one-half or two-thirds of the swarm has circumvented him.

Concluding, he believes that the queen-trap has advantages over the clipping method because it will catch any or all queens in the hive, virgin or laying, whether supersedure took place or not. While it will not prevent the mixing of the swarms, he says it will greatly mitigate it. The trap also has the advantage that the apiarist can see from which hive a swarm may have issued by looking into the trap.

Mr. Taylor might have added that the trap saves some long hunts for queens and the delicate process of clipping. A trap can be clapped on a hive in a few seconds, while it sometimes takes many minutes, if the colony be strong, to find the queen.

The only objection to the trap is the expense and the fact that it may hinder to some extent the passage of bees laden with honey going into the hive; but this latter difficulty has been overcome almost entirely in the modern trap.

THE DANGER OF GLUCOSE SUGARS.

THE *Louisiana Planter*, of November 30, very properly calls attention to the dangers of starch sugar, or what is known to the American trade as "grape sugar," but which might with greater propriety be called glucose sugar. For evidence, our contemporary calls attention to an article in the *Journal of*

the *American Medical Association* which gives a very able summary of all the data available on the question of the suitability of this sugar for human beings. The article goes to show that starch sugar is undeniably dangerous, and that it is practically impossible to have it free from injurious sulphites when manufactured on a large scale. On a small scale it would not pay, for a substance must be cheap when it is to be used for the purposes of adulteration. The author of the article in question, a Mr. Lippman, does not hesitate to condemn this so-called grape sugar in no uncertain words.—W. K. M.

SOME NEW BEE TERRITORY IN PROSPECT IN WYOMING.

WE have received from the State Board of Immigration, Cheyenne, Wyoming, a very handsomely gotten-up book on the resources of Wyoming. It comprises over 140 pages of reading-matter, tastefully embellished with a number of excellent illustrations in "half-tone." As the book is compiled by the regular government officials of the State, there is no doubt the statements are reliable and accurate. Particulars of all government and semi-government projects are given, with the address of those in control. Naturally Wyoming is one of the most favored and most picturesque regions on the earth, with resources that are practically boundless, and a climate which is almost perfect from the white man's standpoint. As a honey State it will probably rival Colorado, Texas, Utah, or California, at no distant date. Any of our readers who are actually seeking a new location in the West, where they can grow up with the country, can send to the above address and get this book.—W. K. M.

GLUCOSE, AGAIN; IS IT POISONOUS TO THE HUMAN STOMACH?

It might be supposed, from the tenor of its articles, that GLEANINGS is rather against the glucose industry, and that no one else is so prejudiced as we are. As a matter of fact, this antipathy is quite common—so much so that the company making this stuff changed its name from the American Glucose Co. to the American Corn Products Co. in deference to widespread popular opinion. The *Louisiana Planter*, the leading journal of the cane-sugar industry, in a recent issue sets forth the situation in this wise:

It is now announced in Chicago that the Corn Products Manufacturing Company contemplate the immediate erection in that city of another great glucose manufacturing and refining plant, the estimated cost of which will be five millions of dollars. The land for this great establishment has already been secured on the line of the Chicago drainage canal, and it is said the expected capacity of the works will be a loaded car movement of 125 cars per day in and out, which will mean the employment of 750 people.

Incidentally it is stated that from 5 to 6 million gallons of water will be needed for the daily use of the establishment, and borings have been made satisfying the management that they can secure an adequate water supply of excellent quality at a depth of some 1600 feet, which will be done with artesian wells. A storage and transfer elevator of a million and a quarter bushels capacity will be erected, and the interior is to be of tile laid in concrete.

A rather novel point is brought out in this connection; and that is, that the woodwork is to be done away with in this new factory, for the reason that the life of a glucose-factory is admitted by its builders not to exceed ten years, because of the deterioration of wood as affected by the processes in use. If the manufacture of glucose from corn starch and sulphuric acid destroys the buildings in which the materials are manipulated, what can we expect that this same combination will do to the human anatomy that is now called upon to take in this country some 1500 tons of it per day—an amount far in excess of the Louisiana cane-sugar crop, and about equal in weight to the present beet-sugar crop?

Again, the following on the same subject appears in *Louisiana Planter* for Dec. 14:

The appeal of the producers of glucose to be permitted to call it "corn syrup" is causing considerable interest in food circles. The extraordinary way in which modern glucose is made by boiling starch in an attenuated solution of sulphuric acid, is a chemical process that seems to have a bad name because of its objectionable origin in the process of its conversion from corn starch to the liquid or solid glucose. The Corn Products Co. have changed their own title from the American Glucose Co., of years back, and are now desirous of labeling their goods "corn syrup," which is essentially a misnomer, as the production of this kind of corn syrup is not possible by the ordinary presence of evaporation, which produces sugar-cane syrup, sugar-beet syrup, sorghum syrup, and maple syrup.

The use of injurious (and, in fact, of dangerous) chemicals in the manufacture of food stuffs was practiced more than half a century ago. It is well known that the sugar of lead is probably the best clarifying agent for refining sugar. Dr. Evans refers to it in his "Sugar Planters' Manual," published about 1845, and says that it became necessary to prohibit by law the use of lead in sugar-refining, owing to the dangers to human health and life incident to that process. In the earlier history of the glucose industry it was a notable fact that one of the chief difficulties connected with it was that of entirely eliminating the free sulphuric acid in the concentrated syrups. In order to do this it was necessary to use considerable lime; and this, combining with the free sulphuric acid, produced gypsum, or land plaster, which floated like clouds throughout the liquid mass, and was very difficult of removal, even by filter-press filtration. Liquid glucose manufactured from corn starch by the sulphuric acid process is now turned out apparently as clear as crystal; but the central fact remains; that is, its manufacture with that very dangerous agent, sulphuric acid, and that free sulphuric acid has very frequently been present in samples of glucose offered for sale. The word "corn," if utilized in labeling glucose, will be so utilized in order to conceal some of the features of its objectionable origin. The label should properly read, "corn and sulphuric acid for table use."

W. K. M.

BEE-TALKS BEFORE SCHOOL-CHILDREN.

SOME time ago Mr. E. W. Pease, of Chicago, wrote us concerning a talk on bees which he had given before one of the primary schools of that city. To give some idea of the interest shown, he obtained and sent to us the essays written on the subject by the children the day following. All of these showed that the most careful attention had been given, and that, in most cases, every part had been clearly understood. This is all the more remarkable since the children were in only the third grade, and were, therefore, not over nine or ten years old.

From about twenty-five papers we have selected four to place before our readers—not because they are the best, particularly, but because they more nearly represent the average.

BEEES.

The queen bee is a little larger than the others. A man by the name of Mr. Pease has an apiary. The father bee is called the drone. There are three differ-

ent kinds of bees in each hive. They are the queen, drone, and worker. If a bee ever gets into the wrong hive the other bees will kill him. There are about forty or sixty thousand bees in each hive. The queen lays her eggs in the cells. The bees put the honey in the cells. The honey-comb is made of pure wax. The bees go to some flowers and get nectar and put it in their honey bag. The bees take hold of the corner of the cell and pull the wax out. When you want to have an apiary you number the hives. There is only one queen in each hive. If there is two one will kill the other. A bee has two pair of wings. The queen bee looks nearly the same as the rest except that she is larger. If the honey-comb is not pure wax the bees will not touch it. A bee will not sting if you will not hurt it. When the bees swarm the queen is always with them. When they swarm you take a dishpan and hit the twig and they will fall into the pan and then you put them in the hive. When a bee stings you it will die.

ARTHUR FRIBERG.

MR. PEASE AND HIS BEES.

Thursday Mr. Pease said he would tell us a story about his bees. First he talked to us a long time about bees, and then showed us some bees he had in a case. It was very interesting. There was a swarm of bees, and with them there was a queen. Mr. Pease said that the bees would not hurt us unless we hurt them. Mr. Pease said the bees and the queen-bees are very nice when they are not angry. There are thousands of bees in one hive.

Did you ever know that bees are mailed to other countries?

They are put in a box, and sent away. One bee must lay at least two or three thousand eggs a day. He said he was going to give us some cheese and honey.

ADENA HALBERG.

MR. PEASE AND HIS BEE-FARM.

Mr. Pease owns a bee-farm. He is a very nice man. He told us that there were forty to sixty thousand in a hive. Mr. Pease's office is on the corner of Winne-mac Ave. and N. Robey Street. He has a nice office. A bee never stings when he comes back from the honey-field. He is full of honey, and is too stiff to sting then.

You have to put a veil over your face or else you will be stung. There is only one queen bee in each hive. I like bees because they give honey. But I would not like it if I should get stung by one. The queen should make two to three thousand eggs a day, or else they would not think much of them.

EVERETT LINDSTROM.

BEEES.

Across the street from our school is an apiary. A man named Mr. Pease owns the farm. Yesterday he was in our room and told us about bees. He said "Bees will not sting when going to the honey-field or coming back, because when going to the field they are too anxious to get the honey, and when coming back they can not curve the abdomen. Bees will sting under only two circumstances: that is, when they are hurt and when excited. The queen is supposed to lay two or three thousand eggs a day. Bees almost always swarm."

ALLEN TRIMBLE.

A study of the papers as a whole reveals the fact that certain parts were remembered rather better than others, showing that children appreciate the wonderful revelations in nature. For instance, nearly every pupil remembered that a good queen should lay from two to three thousand eggs in a day; that the queen is larger than the workers; that there are three different kinds of bees in a colony, etc. Children have wonderful memories; and if they are told such things in an interesting way they almost never forget them. The bees in the observatory hive doubtless helped to impress the lesson on their minds.

It is an oft-repeated statement, but one which is, nevertheless, true, that it pays a bee-keeper to educate the public. Giving a simple and interesting lecture before school-children is one way of doing this, and there are many others.

INJURIOUS EFFECTS OF SULPHITES IN SYRUP AND MOLASSES.

FROM time to time GLEANINGS has furnished its readers with considerable data concerning the injurious effects of sulphites and sulphurous acid when combined with human foods and used as such. Some may have thought we were stretching the truth so as to get a case against syrup, molasses, and glucose. Our ideas on the subject were obtained from reading the reports of physiological experiments made in Germany, and from talks with men well versed in the technics of sugar manufacture. Now comes a bulletin just issued by the United States Department of Agriculture which more than confirms all we have said. Sulphites and sulphurous acid have been found guilty on all counts. Every bee-keeper who sells honey locally ought to send for this bulletin, which we think is free to all. It was issued Nov. 22. As the report is founded on practical experiments made in Washington we will give the summary of results verbatim so that there need be no misunderstanding anywhere.—W. K. M.

These data clearly show that the administration of sulphites and of sulphurous acid in a free state in the quantities employed produces harmful effects. A tendency is manifested in practically every case to produce headache and digestive disturbances. In some cases these symptoms are not clearly marked, while in others they are extremely well defined. In many cases uneasy sensations and even pain were developed in the stomach and intestines, and there were complaints of "heartburn." The occurrence of this class of symptoms during the administration of the preservative and their gradual disappearance during the after-period seem to be conclusive evidence that they could have been due only to the effect of the preservative itself. There were also in some cases attacks of dizziness, and palpitation of the heart. In a few cases nausea was developed to the extent of vomiting.

It was recognized, as in previous experiments, that the mental attitude of the subject might play some part in producing these symptoms, or at least might affect the description of them by the man himself. That this, however, does not exercise a dominant influence was more than established by the remarkable effects of the administration of salicylic acid, where, with the same opportunities for mental effects of a depressing character, there was manifested, on the contrary, a persistent demand for more food, the salicylic acid apparently serving as a stimulant. There is no doubt, therefore, of the fact that the symptoms which are described in the medical history are those actually experienced by the young men, any tendency to exaggeration in the reporting of these symptoms having been carefully considered at the time.

In the case of the men who received sodium sulphite the conclusion is inevitable that the administration of this preservative in the great majority of cases causes headache, sensations of dizziness and occasional nausea, indigestion, pains in the stomach, and other unfavorable symptoms. With the men who received sulphurous acid in an uncombined state, headache was very common, there was a slight tendency to dizziness, accompanied in some cases by nausea, and a feeling of exhaustion and weakness.

In general, it may be said that the most prominent symptom was that of headache, which could hardly have been caused by the imagination. This symptom was very commonly and very persistently experienced at some time during the preservative period.

BODY WEIGHT.

The administration of the sodium sulphite was accompanied by a slight average loss of weight during the preservative period, but the full effect of the preservative in diminishing the weight of the body was shown only toward the end of the preservative period, and there was a continued loss in weight during the after-period.

It appears, therefore, that the administration of sulphurous acid in the form of sulphite tends to reduce the weight of the body slowly, and that this tendency

is continued for a considerable time after the withdrawal of the preservative. There was a very slight increase in the average weight of the body under the administration of the sulphurous acid in the uncombined form, which increase continued in the after-period. The final average effect upon weight for the eleven men shows no change in the preservative period and a slight decrease in the after-period.

THE NATIONAL CONVENTION AT HARRISBURG; A MARK OF APPRECIATION SHOWN TO GENERAL-MANAGER N. E. FRANCE.

OWING to one thing and another we have been unable to continue our report as given on page 1430, Nov. 15th issue. We now take it up where we left off.

We listened to a very interesting address by the Rev. N. E. Cleaver, on the subject "Is it practicable and profitable for the average bee-keeper to rear queens for market?" As we published an article from him on that subject on page 1445, in which he gives some of the main points of his paper, we will not go into a discussion of it here; but the address taking the negative side of the proposition was listened to with marked attention, drawing forth a great deal of interesting discussion.

We next listened to an interesting paper, although somewhat technical, on the insect enemies of the honey-bee, by Assistant State Zoologist Satterthwait, of Harrisburg. The main points were as follows:

The bee-moth (*Galleria melonella*); the wax-moth (*Achraea grisella*), Fab; bee-killer (*Promachus Fitchii*); bee-louse (*Braula cæca*); oil beetle (*Meloe angusticollis*); fly (*Phora incrassata*); meal-moth and the bee-beetle (*Trichoides apiarius*). Of less importance are predaceous wolf-flies, dragon-flies, wasps, hornets, ambush and assassin bugs, ants, and sphinx moths. Aristotle, Virgil, Columella, and other ancient writers mention the bee-moth as a formidable enemy of bees. It was first mentioned in this country by the *Boston Patriot* as having made its appearance near that city in the spring of 1806. It was noted at Mercer, Pa., in 1826, and by 1826 had overrun Ohio. At the present time probably every Apiarian knows the work of the moth, and that it can not be successfully controlled in the old-fashioned box hives. Its life history is as follows:

The moth, from head to the end of the folded wing, is $\frac{3}{4}$ to $\frac{1}{2}$ of an inch; the expanse is $1\frac{1}{2}$ to $1\frac{3}{4}$ inches. The females average much larger than the males. The palpi of the females form a prominent "beak." The palpi of the male are not so conspicuous. The adults fly normally after dusk, about May for the first brood, and August for the second brood. When the moth is at rest the legs are naturally concealed. The wings closely overlap on the back, when folded, and are drawn down at the sides. The outer margin, thus folded, suggests the outline of the tail of a fowl.

When the moth is disturbed it moves with a jump and a flit, making it hard to catch. The eggs are inserted by the telescoping ovipositor into any available crevice of the hive, the number sometimes exceeding 200.

The adult moths are very agile, their speed of flight exceeding the flight of bees.

The bee-killer, or wolf-fly (*Promachus bastardi*) was first reported from Nebraska in July, 1864, as a pronounced enemy of the honey-bee. Dr. Fitch describes these flies as inhuman murderers—the savages of the insect world. They take their prey to some extent, perhaps generally, on the wing, and even seize dragon-flies, bumble-bees, and tiger-beetles. The pain of a common horse-fly's bite is generally understood to be maddening in its sharpness; but the wolf-fly proboscis lacks all softness, and when inserted into the victim it is held there by stiff bristles, and the fly sucks out, not a little blood, but the whole mass of the internal organs! Dr. Riley watched a number of these bee-killers for a while, and observed that, although many other insects were present, it gave exclusive attention during this observation to the selection of honey-bees. The stinging of the bee seems not to affect them except to make them tighten their grasp on their doomed victims. The bee-killer is in the adult stage during June and July.

The bee-louse is found living parasitically on the honey-bees in Europe. It is from $\frac{1}{4}$ to $\frac{3}{4}$ of a line long. It is a body parasite, one or two occurring on the body of the bee, though sometimes they greatly multiply, and are very troublesome to the bees.

The blister-beetle (*Meloe Americanus*) seems to be the only member of its family in Pennsylvania. Its life history is varied from that of most insects, even from other coleoptera, in having, instead of egg, larval, pupa, and adult stage, larval (the breeding stage), the second larval, the third larval stage, pupa, and adult. This insect hatches from the eggs, which are laid in the ground, and gets a foothold on a bee at the first opportunity. These are body parasites. Lack of time prevented Mr. Sattlevait from dealing with other insect enemies of bees such as wasps, hornets, millipedes, and spiders.

The remedy was, to keep the colony strong, and the bees will usually be their own best protectors, thousands of bees being ready to die in the defense of their home.

MR. FRANCE REMEMBERED.

This was followed by the question-box, which, for lack of space we will not here reproduce. But there was one very pretty incident that occurred, during which Mr. W. Z. Hutchinson sprang a pleasant surprise. The session was about to adjourn when he begged a few moments of time in which he might bring up a matter that he thought would be interesting to all. He then proceeded to tell how he had sent out a circular letter to the members of the National Beekeepers' Association in which he called attention to the splendid services performed by General Manager N. E. France to the National, and how he had worked long and faithfully, as every one knew, for a very small salary. He suggested that those who felt that the General Manager's services were worthy of a lasting recognition, and who would be willing to contribute a small amount

toward the purchase of a gold watch and chain, to be presented at the Harrisburg convention, should send in their contributions. There were many responses to this, the majority of remittances being in ten-cent pieces; but there were quite a number of others, ranging all the way from two to five dollars each, the aggregate of which was \$75.00. But the most pleasing feature, said Mr. Hutchinson, in these responses was that many said they had thought of doing the same thing before, and were now glad of sending this mark of their appreciation. One man in particular had thought for some time that Mr. France should be kept under a close "watch," and added that he should not wonder if he needed to be "chained" too, and inclosed his 25 cents. To make a long story short, Mr. Hutchinson, with the money, purchased a beautiful gold watch with a full-jeweled movement, bearing the following inscription: "A token of appreciation from members of the N. B. K. A. to their manager, N. E. France;" and as he presented this to Mr. France he said:

Bro. France, take this beautiful token of our appreciation; wear it next your heart; and may that heart long beat as faithfully and steadily as the little balance-wheel inside; may your face ever be as bright and shining as this beautiful case; and may your days be as full of "good works."

But there was money enough left to make another present, and a happy thought struck Mr. Hutchinson that the wife who had made it possible for Mr. France to leave home and attend to the exacting duties of the National ought to be remembered; and after tendering the watch Mr. Hutchinson turned again to the General Manager and said:

Bro. France, we have tried to fill your cup of happiness to the brim; now we wish to make it *overflow*. Away in that far western home of yours is a loved one who, with bright brain and nimble fingers, looks well to the ways of her household. And we have been led to believe that, were it not for these nimble fingers and the wise guidance of affairs in your absence, it would be impossible for you to fulfill properly the duties of the office that you now hold. In view of this we esteem it a rare pleasure to remember also that faithful helpmate of yours—your wife. We have, for her, a dozen solid-silver tea-spoons. On the top of the handle, in old English script, we have had engraved the letter F. On the under side of the handle, in smaller script, are the letters N. B. K. A. Take them to Mrs. France, and present them with the compliments of the National Association. Tell her not to "keep them just for company." Have her use them every day, just as you do your watch, and when your hand supports one of these so easily, so lightly, remember that, in a like manner, back of you stands the whole National Association, and that it can and *will* support *you* just as firmly as your hand can support one of these little spoons.

At the conclusion of this Mr. France was deeply touched, and for the time being was unable to respond. The day's session adjourned, after which he was made the recipient of many hearty handshakes and congratulations.

GLEANINGS believes that the wonderful growth and success of the National has been due very largely to Mr. France's personality; but, more than all else, to the immense amount of hard work which he has bestowed on the organization—a service, which Mr. Hutchinson very properly estimates, could not have been secured by any private corporation for five times the amount he has been paid.

(Continued.)



HONEY FROM BASSWOOD.

"I am sending you a few questions which I wish you to answer as they are numbered, if you will accommodate me thus; and I wish them answered through the columns of GLEANINGS. 1. I am thinking of moving my bees, the coming summer, several miles to where there is an abundance of basswood, hoping to secure a greater yield of honey than I at present receive, as I have no basswood near me. What would be your opinion regarding this matter? 2. Are there any seasons when basswood blossoms in profusion without giving a good yield of nectar from those blossoms? 3. Are not the blossom-buds formed on the basswood-trees a few weeks previous to the time of their opening, so that I can know by this whether there is a prospect of honey from that source in time to make preparations for moving? Thanking you in advance for whatever reply you may see fit to make, I am

"Yours truly,
"T. E. HOWE, New York."

In answering the first question I would say that I believe basswood to be the greatest honey-producer in the world, and the least likely to fail to yield nectar of any plant or tree; therefore I call the idea of our correspondent a good one, and I see nothing against it except the expense. That basswood is an enormous yielder of nectar was proven years ago, when the late Dr. Gallup, then of Orchard, Iowa, obtained a yield of 20 pounds per day on an average from a single colony, during a period of 30 days; or 600 pounds from a single colony in thirty days. This record has never been beaten, if I am correct, by any single colony, from any one source of nectar supply during the same number of days. I once had a colony which gave a yield of 66 lbs. of basswood honey in three days, and 302 in ten days, and probably might have done nearly as well as Gallup's had the flow of nectar continued as long. From the above I believe if Mr. Howe can move his bees to the basswood and return them at an expense of about one dollar per colony, he would do well, even in a rather poor season, as a yield of ten pounds per colony would nearly if not quite pay for the moving. And should the cost come up to \$1.50 per colony, 15 to 17 pounds would cover that with the present price of honey.

By going back over my account with my bees for the past 30 years I find that, from basswood alone, my yield of honey has been about 55 pounds on an average from each colony, each year. This is the average yield of the apiary, not the yield of an individual

colony. Now, to be on the safe side, suppose we call 50 pounds as the average yield, or what we could expect one year with another, from basswood, and that it will cost 20 pounds of that yield for moving the bees to the basswood, we shall have 30 lbs. per colony left as the profit. This, at 10 cts. per pound, would give us \$3 00 per colony; and if Mr. Howe has 100 colonies his profit above the cost would be \$300 00, which would be an item worth considering.

To his second question, I will say that, up to five years ago, I never knew of an entire failure of nectar from the basswood. That season we had a freeze which formed ice half an inch thick after the basswood commenced to leave out, and for this reason there was not any basswood bloom at all that year, hence an entire failure; then three years ago a freeze killed all the buds on the low ground, but on the hills there was some bloom, but not enough to give any thing like a full yield. Aside from this the shortest flow I ever knew gave a three-days' yield, in which honey was so plentiful that the bees could not prepare room fast enough to store it, with a gradual tapering off of two days more, making five days in all. The longest gave a yield of 25 days, with three of them so cold that the bees could work only a little in the middle of the day. The state of the atmosphere has much to do with the secretion of nectar in the basswood flowers. The most unfavorable weather is a cold, rainy, cloudy spell, with the air or wind in a northerly direction. If basswood bloom came at a time of year when we were likely to have much such weather, there might be some doubt about moving to the basswood being profitable; but, as a rule, we have very little such weather while basswood is in bloom. We are more apt to have showery weather with the air charged with electricity, at which time the nectar will almost drop from the blossoms, providing no rain comes within two or three miles from the apiary. At such times as this I have seen honey sparkling in the bloom after it had fallen to the ground—so much so as to attract my attention in the morning sunshine. Then this nectar is almost or quite honey, not sweetened water, which makes basswood doubly valuable over most of other honey-secreting plants or trees. At times when basswood was yielding its best I have seen fully a bee-load of honey in a single flower, and from one stem of blossoms I have jarred two to three thick drops of nectar into the palm of my hand, enough so it would run from the hand. But, of course, such an extreme has occurred only three or four times in my forty years of apicultural life.

In answering the third question I will say that the fruit-buds and leaflets to all trees with which I am familiar are formed in June and July of the preceding year, so the results of next season's honey yield, so far as buds and flowers are concerned, are already formed in embryo, on the apparently bare and lifeless branches of the basswood-trees, as we behold them these zero days of winter. They

wait only for the warmth of spring, to bring this dormant life into growth. As soon as these buds unfold some time during the coming May, then we can see and know whether to make preparations for moving the bees or not. By examining closely we can find the bunch of buds at the base of each leaf, curled up, looking like the half of a small sweet-pea seed, or perhaps a little fuzzy caterpillar would describe it better. With each week the bunch of buds grows till at the end of about seven weeks from the time the trees begin to show their green in spring they open their flowers filled with nectar, to invite the bees to a sumptuous feast. Of course, a cool season will retard the time of bloom from a week to ten days, and a very hot season advance it nearly as much, but the above is the rule. June 28th is the earliest I ever knew basswood bloom to open in this locality, and July 16th the latest. Thus the practical eye can tell nearly two months in advance as to the promise of a yield of basswood honey.



SELECTING QUEENS.

I read with great interest the article in Nov. 1st issue GLEANINGS from E. W. Alexander, as I always do words from his pen. Two points interested me particularly, as my own experience is strictly in line with his. One of the greatest inventions ever made in this country, or, for that matter, in the world, was the Babcock milk-tester. This simple instrument makes it possible for the dairyman to know just what each cow brings him. He need not leave any thing to chance, but can tell easily, at once, and with no chance for mistake, the exact status of every one of his cows. This makes it possible to weed out the failures, and also the indifferent animals, and soon he has only the best; and as he breeds from those retained, he reaps a double benefit; he has cows that pay, and he gets a renewal in kind for future use. It is said that this simple invention of Prof. Babcock, of the Wisconsin University, which was *given* to the world, increased the dairy products and profits by one-half in Wisconsin; and if there, then of course it has done equal service in every other State where the dairy interest is prominent.

Mr. Alexander's article suggests that the dairyman is not the only one who practices this weeding-out process. The bee-keeper has no Babcock machine, but he is less in need of one than is the dairyman; for if he has sharp eyes (and these are quite requisite to the successful bee-keeper) he will know his queens from alpha to omega, and will know

the one that fills his hives with industry, honey, and his pocketbook with dollars. But, even with this knowledge, how many practice the keeping of only the best, and breeding from only the *very* best? Here the apiarist has advantage over even the dairyman, for the dairyman will, with a great show of reason, hesitate to kill any of his calves from selected mothers, while the bee-keeper has no good reason for breeding from any one but the very best queen of the apiary. The dairyman can get but one offspring from each cow in a year, while the bee-man can get all his queens from his best queen—an unlimited number; and if he exercises the requisite care, he can get them nearly all mated with drones from his next-best queen. Should not all then follow the advice and example of Mr. Alexander, taking every pains to determine the very best queens, those that breed late in fall, those that are phenomenally prolific, those that give us sweet-tempered workers, and, indeed, workers that are models in every respect? Then let us be unsparing, and mercilessly destroy every one that does not come up to the best, and requeen from young queens that are reared from the very best queen in the bee-yard. If others have better—they will not have if we practice the above—then we will, if wise, secure from them, that we may breed and possess the very best that are to be had.

Peter Collyer once said that it would be a God-send if lightning would strike half the cows in the State of New York if it would select discreetly. Mr. Wm McEvoy says in the October number of the *Canadian Bee Journal*, that 90 per cent of the queens of Ontario should be destroyed, and young better queens put in their place. We have no reason to think that Ontario is one whit behind any section of the world in the skill and intelligence of her bee-keepers.

The second point made by Mr. Alexander is just as wise and timely as the other. Years ago, as readers of the bee-journals will remember, I tried the effects of stimulative feeding in the spring, and with surprising results. There is no question but judicious feeding, regularly carried on, will do wonders as the colonies are building up in the spring. Mr. Alexander makes another good point which has so much of his customary good sense coupled with it that it must commend itself to every thoughtful experienced bee-keeper. The solid combs of capped honey in the middle of the brood-nest are surely in the way of a prosperous increase. Someone has said that dirt is matter out of place, and, if so, a very short word characterizes the keeping of great frames solid with honey in the brood-chamber in the early season of the year.

There are three decided gains in the recommendation of Mr. Alexander, faithfully carried out: First and least, we often get honey to sell that would otherwise be worse than useless, for a time; second, we remove the great cold barriers in the midst of the brood-nest, that would better be in cellar or storeroom, or, better still, extracted, the hon-

ey sold, and the combs ready for use as needed in the spring; and third, and most important, we would practice that stimulation which would give us very strong colonies and much honey as the season advances. I am sure we all owe Mr. Alexander a most hearty vote of thanks for his meaty article, and you, Mr. Editor, for giving it to us in the pages of your excellent paper.

ENEMIES OF BEES.

One of the interesting facts of nature is that of mimicry for protection. In one case our bees are victims to this law of mimicry. This comes through one of our little bugs, which, in my "Bee-keeper's Guide," I call the "stinging bug." This insect is known to science as *Phymata erosa*. This little bug is a good illustration of this law of mimicry. It is of a dull obscure yellow; and as it hides among the stamens of the goldenrod it is so concealed that it is difficult even for the human eye, sharpened by close scientific observation, to discover it. What wonder, then, that the industrious honey-bee, all unsuspecting, should come fearlessly into the very clutch of this cruel stinging bug? I gave the name "stinging bug" to this little stalker, as it often punctures man himself so as to cause a severe smart.

There is another curious feature about this little murderer that is not specially joyous to the bee-keeper. It has its front legs curiously fashioned so as to grasp with them; and as it lies snugly in its floral retreat it can, as bee or other coveted insect comes to it, grasp its luckless prey with one of these strong leg jaws, and, with the other, hold firmly to the flower, and then with its strong beak can pierce and suck its victim bloodless and lifeless. This phymata is widely distributed in our country, and destroys many thousands of bees annually. It is fortunate that our bees are so prolific, as we know of no way to get rid of these bugs, and we may not suffer very serious loss, for the increase in the hive with a good queen is so striking that the loss from the stinging bug is not greatly felt.

On page 1510 you very wisely endorse what appears to be to you a new idea in comb-honey shipping-cases; viz., a sliding cover. No doubt the idea is original with Mr. Hart, but we have had them in general use in Ontario for fifteen years or more. I simply took the pattern from the old-fashioned wooden match-box.

STIMULATIVE FEEDING IN SPRING.

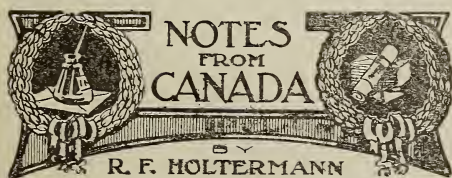
At the Ontario Bee-keepers' Association convention lately held in Toronto, Messrs. Wm. McEvoy, S. D. House, E. Deckinson, Jr., and R. F. Holtermann were about the only pronounced advocates of stimulative feeding. They carefully qualified the statement by saying it had to be done skillfully and judiciously, and Mr. McEvoy said that, when begun at fruit-bloom time, feeding should be done whenever one day passed without either natural or artificial storing by the bees. For my part I am inclined to think that the four above-named gentlemen displayed remarkably sound judgment in their views and convictions upon the question.

BRANT DISTRICT MEETING.

The Brant District bee-keepers' convention, which has been so great a success for several years, and which last year was honored by the presence of five (and no ordinary five) of our United States bee-keeping fraternity, is to be held this year at Brantford, Jan. 21, 22, 23, beginning at 7:30 P.M. of the first day, probably at the court-house. Mr. L. A. Aspinwall, President National Bee-keepers' Association, Jackson, Mich., has already signified his intention to be present with a non-swarming hive. As old and careful an investigator as is Mr. Aspinwall would be enough of a drawing card; but we expect many more. My bee-cellar will be open for inspection. I should be glad if those coming from the United States or Canada would write the secretary, Mr. W. J. Craig, Brantford, or myself at the same place. New York State is only some 80 miles away, and Michigan is within a reasonable distance.

FOUL BROOD.

No doubt all will be pleased that, when the reports of the latter part of the season and that of the extreme eastern portion of the Province have been added to the early seasons, the percentage of apiaries found diseased of those inspected is 42. This, however, leaves no room for congratulation, particularly when, in some cases, every apiary in the vicinity was inspected. As the result of attending conventions in New York and Michigan I found much disease reported in the Michigan Convention, where, it was said, "We must wipe it out or it will wipe us out." In other diseases of a contagious nature a good wholesome anxiety aroused makes every intelligent person help in the needed work. It appears to me that the bee-journals could and should help in this work. Let every bee-keeper in the country work to see if the dis-



PLACING BEES EARLIER IN THE CELLAR.

On Nov. 18, Mr. C. Edmanson, President of the Brant Bee-keepers' Association, a thoroughly up-to-date bee-keeper, helped me to put my bees in the cellar. On the 27th of the same month I helped him to cellar his bees. We both made up our minds that the bees had lost by remaining out the other nine days, and, circumstances permitting, the bees will go in even earlier next year.

ease is in his and his neighbors' apiaries, and this, with the law in cases needed, will do much to stamp out the disease.

HONEY FOR ROYALTY.

So King Edward, of Great Britain and Ireland, is to be presented with Canadian comb and extracted honey. It is the product of the Province of Ontario, and it was shown at the fruit, flower, and honey show, Toronto. Messrs. D. Anguish, Geo. Laing, H. G. Sibbald, E. Grainger, and J. H. Thomson, certainly had very fine honey there, and I feel sure that, with His Majesty's usual good judgment, the Ontario Bee-keepers' Association (for it presents the goods) will in future be "Purveyors to His Majesty." His peaceful tendencies are already well known; but we expect that, after partaking of this honey, his Majesty's tendencies in that direction will become so active, and his good will to the bee-keeping industry in Ontario will become so great, that he will be instrumental, or at least seek to be instrumental, in calling a truce, or even declare a peace between *Bacillus alvei* and the larvæ of *Apis mellifica*; also between whatever factions or differences of opinion there may be in the bee-keeping world.

CARBON DIOXIDE IN WINTERING.

In the *British Medical Journal* of Dec. 22, 1906, appears an interesting article on "Acapnia as a Factor in Shock." The article is by Dr. Henderson, and it may have a very interesting bearing upon the wintering problem. It is just such problems as these, and the impossibility of their accurate solution otherwise, that makes us long for the time when we shall have thoroughly practical yet scientific experiments in charge of apicultural experimental stations equipped for the most delicate of tests and closest observations and the recording of the results. Briefly Dr. Henderson states that it is found that, in the fetus of animals, there is found in their blood a higher percentage of carbon dioxide than in the mature animal; that in breathing our lungs are not entirely emptied of gas, and that, when we draw in fresh air, owing to the admixture of this with the carbon-dioxide-laden air there is a dilution.

This admixture of carbon dioxide and air has a purpose, as has every act in nature. He found that, when we draw sharp quick breaths for several times in succession the carbon dioxide in the lungs is diluted, and, after such action, we naturally want to stop, or at least we much want to curtail breathing for a time. The object thus accomplished by nature is to increase again to normal the percentage of carbon dioxide in the lungs. Dr. Henderson, by careful tests, found that by increasing the amount of oxygen in the lungs, the palpitation of the heart increased, and the amount of blood driven through the veins was affected, and that this may become injurious; in fact, in extreme cases it caused death.

But some may say this is very interesting,

and may even explain to those whose heart-action is weak why they should not exercise violently; but what has that to do with bee-keeping?

Why, I can see that it may be possible that, when bees are at rest, especially during the quiet of winter, it may be a positive advantage for the atmosphere to be diluted with carbon dioxide, that the lack of ventilation, except in a very moderate way, may be injurious, providing the moisture, by means of environments, or the construction of the hive, or can be taken away from the bees. What interesting problems in bee-keeping, problems that we have not yet dreamed of, may we not solve in the future?



HONEY GINGER-BREAD.

Simmer one pound of honey; mix in one pound of rye flour or wheat flour. Stir with a wooden spoon. Beat it well and then allow it to get cold. Add to the batter (dough) half an ounce of carbonate of ammonia, which may be obtained at any drugstore. Thoroughly incorporate the carbonate of ammonia, for on this the proper rising of the bread depends. It should be cooked slowly in the oven. This is said to produce excellent bread, and yet is very easy to make. —*Health and Honey (French).*

BEE-KEEPING FOSTERED BY THE NEW ZEALAND DEPARTMENT OF AGRICULTURE.

The New Zealand Department of Agriculture has just sent us a copy of a recent bulletin on bee culture which it is now distributing to the bee-keepers of that far-away country. As usual, it is well gotten up, and its teachings are sound and good. Its author is an old-time friend of GLEANINGS, Mr. Isaac Hopkins, who is now government apiarist. The bulletin is mainly written in the interest of beginners and amateurs, and, so far as we know about New Zealand apiculture, the instruction given is excellent.

A NEW WORK ON THE NATURAL HISTORY OF THE HONEY-BEE.

The publishers of the *Illustrierte Monatsblätter fuer Bienenzucht*, published at Klosterneuburg, near Vienna, have sent us a copy of part first of their new book "Contributions to a Natural History of the Honey-bee," by Dr. Fleischman, Professor of Zoology in the University of Erlangen. The editor is the well-known Theodor Weippl, himself quite an author, and also editor of

the Austrian bee-journal from the office of which this book is published. The book is somewhat on the style of Mr. Cowan's, but goes over more ground, and goes deeper into the subject. One of the features of this work are the illustrations drawn by Dr. Fleischman himself. There are nearly sixty in this part alone, which deals with the hair, legs, wings, mouth-parts, and various parts of the body. The cell theory as applied to honey-bees is graphically displayed so as to be readily understood. It will be some time before all the parts are out, as it is being issued from time to time. To those who understand the German language thoroughly, we can highly recommend this book. Each part costs 25 cents; but any one wishing to obtain copies must subscribe for the whole book, which, we understand, will consist of six parts.

THE HONEY-BEARING TREES OF WEST AUSTRALIA; THE EUCALYPTUS.

Mr. John Craigie has kindly furnished me with a list of the principal honey-bearing trees of West Australia, which may be considered a model, and hence it is appended here. It will be noted that the common names of the eucalypti differ in some cases from those in other parts of Australia.

MYRTACEÆ.	SYSTEMATIC NAME.	VERNACULAR N'Æ.
Myrtacæ.	Eucalyptus Calophylla.	Red gum.
Myrtacæ.	Eucalyptus Marginata.	Jarrah.—
Myrtacæ.	Eucalyptus Toxophylla.	York gum.
Myrtacæ.	Eucalyptus Redunca.	Wandoo.
Myrtacæ.	Eucalyptus Gomphocephala.	Tuart.
Myrtacæ.	Eucalyptus Patens.	Blackbutt.
Myrtacæ.	Eucalyptus Rostrata.	Flooded gum.
Myrtacæ.	Eucalyptus Rudis.	Flooded gum.
Myrtacæ.	Eucalyptus Megacarpa.	Blue gum.
Myrtacæ.	Eucalyptus Agonis Flexuosa.	Peppermint-tree.
Myrtacæ.	E. Melaleuca Leucadendron.	Paper-bark.
Proteacea.	Banksia Verticillata.	River Banksia.
Proteacea.	Banksia Littoralis.	Seaside Banksia.
Proteacea.	Banksia Attenuata.	Narrow-leaf Ban'a.
Proteacea.	Banksia Menziesii.	Menzies Banksia.
Proteacea.	Banksia Glaciifolia.	Hollyleaf Banksia.
Proteacea.	Banksia Grandis.	Great flowering B.
Proteacea.	Banksia Dentata.	Toothed Banksia.
Leguminosæ.	Acacia Saligna.	Wattle bark.
Leguminosæ.	Acacia Acuminata.	Raspberry jam.
Leguminosæ.	Acacia Microbotrya.	Wattle gum.
Læcinthaceæ.	Nuytpsia Floribunda.	Christmas-tree.

For good or ill, the eucalyptus-trees are being extensively planted on the Pacific slope, and the more we know about them the better. It is pretty certain that, in many cases, the wrong species has been planted, and an error of this kind is difficult to rectify. For example, the blue gum of Tasmania (*Eucalyptus globulus*) has been quite extensively planted, whereas it is much inferior to some others for the same purpose. Curiously enough, California has great virgin forests of fine redwood and pine trees, and yet it is planting eucalypti by the millions.

THE HONEY FLORA OF SPAIN.

Señor Miguel Pons-Fabregues, of Barcelona, Spain, has sent me a copy of his "Apicultural Flora of Spain," a book of nearly 200 pages. As indicated by its name it deals with the honey-plants of Spain, or, rather, the Iberian peninsula. It enumerates 652 species of plants which the bees frequent.

Of course, these are not all natives, some being exotics; but the fact that some parts of Spain are very cold, while other parts are quite tropical, growing oranges, lemons, dates, etc., accounts for the long list. Señor Pons-Fabregues has made quite a study of the bee flora of Spain, and has succeeded in compiling a very interesting list.

Some of the plants he mentions might with great propriety be introduced into the United States; for example, chick-peas, sulla, esparcette, lentils, St. John's bread, and fennugreek, all belonging to the order of legumes. In Spain these plants have been regularly cultivated for hundreds of years.

This Spanish writer regards the "sweet clover," or "Bokara clover," of this country, as a sub-species or variety of *Melotus alba*, which he terms *Melotus leucantha*. He mentions, also, *Melotus parviflora*, *M. neapolitana*, *M. macrorhiza*, and *M. arvensis*. He does not mention the dark-blue or purple sweet clover.

He mentions the hardy yellow alfalfa (*Medicago lupulina*). He says it sometimes bears violet flowers. He also states there are many other species of *Medicago* in Spain.

THE DANDELION IN SPAIN.

In regard to the much maligned dandelion he rightly remarks that it is an excellent salad plant, and that it is an excellent forage plant for cattle. It may interest many to know that heather grows well on the mountain tablelands of old Spain. He quietly remarks, however, that, while the quantity of the honey obtained from it is very great, the quality is inferior. If he ever goes to Germany or Scotland he stands a chance of being lynched.

He mentions the olive-tree as a honey-plant, in deference, probably, to the opinion of some other bee-keepers who have reported it as such. He seems inclined to doubt it. I

have observed olives for years, and, so far, have yet to see a bee near its flowers. Possibly it yields honey-dew. He mentions the grape in his list, for the reason that, after other insects have bitten open the skin, the bees manage to get a quantity of sweet nectar therefrom. Altogether the book is a very creditable production, more particularly as it emanates from a country which some are inclined to regard as behind the age. It is very well printed on good paper, and sells for 50 cents.

BEE-KEEPING IN SPAIN; A COMPARISON OF PRICES ON HONEY IN THE VARIOUS EUROPEAN COUNTRIES, FROM EL COLMENERO ESPAÑOL.

On various occasions we have shown how abundantly blessed is our native country with appropriate conditions for successful apiculture—a benign climate, and a rich and abundant flora rendering it possible to se-

cure yields which may seem impossible to those who do not follow the movable system of bee-keeping. Modern apiculturists who devote study and knowledge to effect a complete understanding of the problems surrounding the collection of honey are just as anxious to secure a price for their honey from merchants equal to its actual value, or the system in which it is held, and according to the class to which it belongs. In this part of Spain it is somewhat difficult to realize on our honey for want of a depot or honey-selling agency.

Our honey, especially that proceeding from orange-flowers, in the kingdom of Valencia, Murcia, and Andalusia, also that from the rosemary, is always appreciated, as also that gathered from the flowers of the wild thyme, and other mint flowers having an exquisite aroma, and which are proper to the Mediterranean region and the coast of Spain. These have to come in competition with honey derived from clover, sainfoin, alfalfa, rape, and other kinds of various origins, which are more abundant in outside regions, but which we are certain are not superior to our Spanish honeys. We propose, then, to compare the prices obtained in other countries with those in our own, as a guide to our bee-keepers.

Berlin.—The price of extracted honey there is always firm enough; $\frac{1}{2}$ kilo (a little more than 1 lb.) extracted honey, 30 cts.; $\frac{1}{2}$ kilo (a pound section) comb honey, 37 $\frac{1}{2}$ cts.; 1 kilo (2 $\frac{1}{2}$ lbs.), 59 cts.

Bremen.—Honey (in sections) per lb., 30 cts.; honey (extracted) per lb., 27 $\frac{1}{2}$ cts.; honey (strained), per lb., 20 cts.

At Reichenberg, Bohemia, Austria, the price of honey in the market is approximately as follows: $\frac{1}{2}$ lb., 20 cts.; 1 lb., 36 cts.; 1 $\frac{1}{2}$ lbs., 56 cts.; 2 $\frac{1}{2}$ lbs., \$1.00.

It should be understood this is for honey which is new, and put up in a jar.

Germany.—Already we have quoted the prices obtained for honey in the capital city of the nation, giving the figures obtained at the end of last October. These prices make a very suggestive comparison when put alongside the prices obtained for Spanish honey, and it is certain the quality is in no-wise superior to ours. The sale of honey at these prices is very considerable, and may be indicated as never under 30 cents nor over 37 $\frac{1}{2}$ per lb. (17 oz.). It is understood, of course, the honey is in glass. For basswood, locust, and similar kinds, which are considered very good, but which are certainly not superior to orange blossom or wild thyme, a price of 50 cts. per lb. is obtained.

In Denmark the best honey is sold by the producer directly to the consumer, and the average price obtained is in the vicinity of 28 cts. per lb. in the bottle.

In France the course of prices for honey in Paris is almost stationary, and for light-colored high-class honey the stores never seem to have enough.

In Switzerland the honey is generally very good, and as much as 60 cts. per lb. (in jars) is often paid for it.

Now we have some sort of data on which to base the future production and sale of honey in Spain, with respect to the chances of exporting our honey to foreign countries, more particularly as we have noted the large importations of honey from South America into Hamburg, Germany, which would indicate there is always a remunerative sale for good honey elsewhere.

But, on the other hand, here in Spain all kinds of good honey which can be guaranteed as the pure nectar of the flowers, and which the intelligent buyer knows to have been extracted by centrifugal force, and produced by the movable-frame system, can generally be sold with facility. In addition to this there is this about this system, and it is a very important feature, that, provided there is no other bee-keeper in your locality, it is quite possible to secure from an apiary 25,000 lbs. of honey—a superb result.

It is important that much study be devoted to apiculture, for our country is lamentably deficient in this respect, and clings to the old-fashioned plan. Our present limited production is simply due to superior natural advantages only. Our system of production is faulty, and so also is our system of selling to foreign countries, for the superior quality of our honey ought to insure for it a ready sale in foreign markets. In our November number it may have been noticed that, through the medium of the government and the department of agriculture, it had been officially determined that apiculture would receive more attention in future from the Grand Institute of Agriculture, and also in the schools of practical agriculture, so that the true system of apiculture, theoretical and practical, will be taught.

PEDRO VILLUENDAS HERRERO.

A BELGIAN BEE-KEEPERS' SOCIETY AND ITS DOINGS.

One of the most active and energetic bee-keepers' society in all Europe is that of Bourg-Leopold, in Belgium. During the season just passed it held a number of meetings which, in some cases, were held at the apiaries of members. For the year 1908 the committee of management have decided on a program that, to say the least, is praiseworthy.

1. To change the race of bees in the country, and to substitute Americans, Italians, and their crosses.

2. As far as practical, to increase the bee pasturage.

3. To maintain hives on scales so the value of the various localities for bees may be determined with certainty.

4. Official participation in all bee-exhibitions, agricultural fairs, food expositions, etc., with the view of popularizing the honey of the Campine.

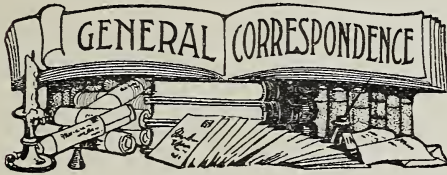
5. To maintain a committee whose business shall be to promote the sale of honey belonging to members.

6. To study the bee flora of the Campine and to propagate plants which yield honey.

7. To gather a collection of home and foreign honey.

8. To study every thing bearing on the improvement of the industry.

The first item ought to interest the Germans just over the border, for they have severely condemned our American bees. Was it prejudice?



LATE FALL FEEDING.

Its Advantages; How 200 Colonies were Fed a Sufficient Amount of Warm Syrup to Last them Through the Winter; Why Sugar Syrup Should be Substituted for Honey.

BY E. W. ALEXANDER.

It is only a few years since the necessity of feeding bees in the fall was looked upon as the result of inexcusable negligence in the management. But time and experience are changing many methods, and we are fast learning that bee-keeping to-day is a very different business from that of years ago.

Last winter, while visiting one of the most extensive honey-producers of New York, he told me that he and his father had for several years fed every one of the 1500 or 2000 colonies they had, just before putting them away for winter. They gave each one about 20 lbs. of sugar syrup without regard to the amount of honey the hives contained. This syrup was made from granulated sugar in the proportion of 2 lbs. of sugar to 1 of water. This was boiled until well dissolved, when about $\frac{1}{4}$ lb. of tartaric acid was added to every 100 lbs. of sugar. From their extensive experience in feeding tons of sugar to thousands of colonies they told me it was a much safer and a better winter food than any honey their bees had ever gathered.

The principal fault with all honey that I am acquainted with, except basswood, is that it contains some pollen that is carried into the honey-cups of the flowers by the wind or by insects, and then it is taken out with the nectar and becomes mixed with the honey, where it has a very injurious effect on the bees during the winter. This pollen is very noticeable in our large honey-tanks when they are nearly full of extracted honey, as it rises to the top, forming a scum sometimes two inches thick. This, when mixed with the winter stores, is quite likely to cause dysentery before the bees are taken from their winter quarters in the spring.

Now, with sugar syrup, since there is no

foreign substance it is practically all digested, and the bees come from their winter quarters dry and clean, leaving no marks on the snow or their hives after their long confinement. This one advantage derived from sugar syrup, of itself alone, would far more than pay for the trouble of late fall feeding.

But there is another advantage gained by substituting sugar syrup in the place of honey. If it requires about 20 lbs. of honey to winter a colony, this additional surplus would be worth at wholesale about \$1.50. Now, in its place, if we use 14 lbs. of sugar to make about 21 lbs. of very thick syrup, costing about 75 cents, or half the amount the honey will bring, there is a saving of over \$400 in an apiary of 600 colonies. Besides the bees are given a much safer and better winter food.

We have been so well pleased with our experience along this line, and the experience of these noted bee-keepers, that we are now wintering some 200 colonies almost wholly on sugar syrup.

As many readers of GLEANINGS would like to know how we feed such a large amount of syrup in cool weather I will briefly state how it was done.

The first important part is a convenient feeder, one that will hold at one time all the feed necessary for one colony. This we made by taking 50 of our outside telescope caps, having a rim 2 inches deep all around. The inside of these we gave a good coating of hot paraffine wax, which prevents the syrup from penetrating into the wood, and also stops leaking. These caps are $\frac{1}{4}$ inch larger each way inside than the hive is outside.

We put in a suitable float to prevent the bees from drowning in the warm syrup, and also put two cleats across inside the feeder for the hive to rest on; then about sundown we took these 50 cap feeders and set one properly leveled up near each hive we wanted to feed. With the syrup as hot as the bees could stand we poured into the feeder the amount we thought the colony required, then, carefully lifting the hive from its bottom-board, we set it inside the feeder directly over the warm syrup, and the job was done. The bees at once went down into the feeder and removed all the syrup long before morning; so the next day all we had to do was to set the hives back on their bottom-boards and place the 50 feeders ready to feed 50 more colonies the following night. After we had the syrup ready it required only about half an hour for my son and myself to feed 50 colonies. In four evenings, between sundown and dark, we had the 200 colonies all fed, and not a spoonful of syrup was wasted nor a handful of bees lost.

This feeding was done on quite cold frosty nights about Oct. 25.

Now, if we were feeding in early fall for the purpose of brood-rearing it would be necessary to feed much thinner syrup, and only two or three pounds a day, about the same as we would feed in the spring in order to stimulate brood-rearing.



DR. BIGELOW GIVING A DEMONSTRATION BEFORE A CLASS OF TEACHERS

Dr. Bigelow, the nature-study man, in the middle foreground, is the one who, two years ago, demonstrated his ability to bring together in perfect harmony the honey-makers and the schools, and in a general way to popularize honey.—Ed.



DR. BIGELOW GIVING A DEMONSTRATION BEFORE A CLASS OF TEACHERS FROM THE SUMMER SCHOOL AT BUTLER UNIVERSITY, INDIANA.—SEE PAGE 34.

Dr. Bigelow, the nature-study man, in the middle foreground, is the one who, two years ago, brought to the home apiary of the publishers a large company of schoolteachers to study bees and their methods of management. Our older subscribers will recall half-tones on these pages showing how at this time he not only tamed the bees but the schoolma'ns as well. In the picture he has again demonstrated his ability to bring together in perfect harmony the honey-makers and the honey-eaters. He has done much to introduce bee culture as a department of nature-study in our public schools, and in a general way to popularize honey.—Ed.

Every year's experience convinces me more and more of the importance of feeding our bees at certain times of the year. We as honey-producers have sadly neglected this important part of our business.

There are many of us who neglect to do certain things both useful and necessary for the welfare of ourselves and bees, simply because we have no convenient and quick way to do the work. In feeding these 200 colonies I have just mentioned, if we had been obliged to feed them in our small spring feeders holding only about 2 lbs. each, we should have had an elephant on our hands; and the feeding, if done at all, would have required two weeks or more, as the bees would hardly have entered a small feeder so late in the season.

The principal advantage in late fall feeding is to have the bees store the syrup in and around the cluster where they have removed the honey during the last of their breeding in the fall; then this is first consumed by the bees during the winter; and by the time they commence to use their honey they are out of the cellar, and can frequently fly; so if their honey contains pollen, or is otherwise of poor quality, it can do them no harm.

I think the time is near at hand when the successful honey-producer will substitute sugar syrup for honey as a winter food wherever bees require a cellar for winter protection. In order to compete successfully with many that are now well established in the production of honey, it is necessary for us to be ever ready to take advantage of any thing that will add to our income, even though it may require the investing of some money at first.

We must certainly sow before we can expect to reap. This applies as truly to bee-keeping as to any other line of business.

Delanson, N. Y., Dec. 6.

[It is the usual rule nowadays to feed sugar syrup early in the fall before cold weather sets in, making the proportions half sugar and half water, either by weight or by measure. While this does not make a syrup by any means as thin as nectar, yet a thin syrup the bees will invert better than a thick one; that is to say, they partially digest it, making it more suitable for a food. Such a syrup, when evaporated in the hive, will never granulate or revert back to sugar; nor is it ever necessary to use any acid to prevent such granulation. But in feeding late in the fall, after cool or cold weather has set in, it is necessary to feed as our correspondent advises, with a syrup two parts of sugar and one part of water, and perhaps it may be advisable to use an acid.]

There is an advantage in feeding late, and all at one feed, thick syrup. The bees store it quickly, and in the mean time there is no tendency to induce brood-rearing, because there is not time for it, and because it is too cold. The thick syrup does not require evaporation like the thinner one, and consequently does not cause the bees to set in motion their little chemical laboratories to in-

vert the syrup. Possibly there is an advantage in this. At all events, we have a number of times in late fall, when it was too cold for the bees to fly, fed a thick syrup, and in each case the bees came out in fine condition in the spring. Whether this was due to *other* favorable conditions, or whether it is an actual advantage to have an uninverted syrup, we can not say.

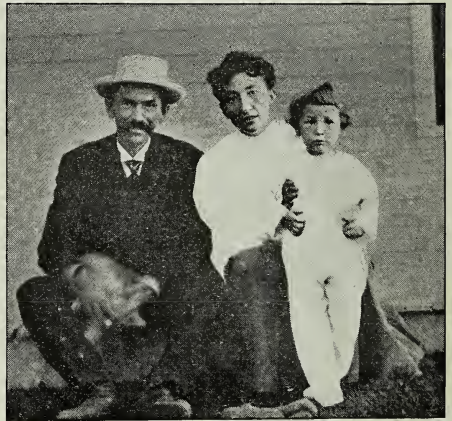
This is an interesting field for experiment and discussion, and we should be glad to hear from others of our subscribers who may have any thing to offer on this subject.—Ed.]

FRANK RAUCHFUSS' HOME IN COLORADO.

BY FRED W. MUTH.

Mr. Frank Rauchfuss lives in a pretty little home in the suburb of Aurora, on the outskirts of Denver. Standing before his house, in the middle of the road, one can see, at night, Pike's Peak, 95 miles distant, and from the front porch can be seen the beautiful, picturesque, snow-capped mountains some sixty miles away.

Mr. Rauchfuss needs no introduction to the bee-keeping world, as he is one of the best bee-men who ever lived, and is the manager of the Colorado Honey-producers' Association. He conducts a bee-supply and honey store at 1440 Market Street, Denver, where he disposes of many carloads of bee-



FRANK RAUCHFUSS AND FAMILY OF AURORA, COLORADO.

supplies during the honey season, and sells the product of the members of his association.

Mr. Rauchfuss and his good wife speak German at their home, which pleased me more than I can tell, for it reminded me of days of yore in my dear old home.

It would certainly make any farmer's wife envious to see Mrs. Rauchfuss' garden next to their house. Never before have I seen a

home garden under such high culture. It is, indeed, a real picture.
Cincinnati, Ohio.

DEMONSTRATION-CAGES.

A Simple Handy Collapsible Wire-cloth Cage for Public Demonstration of Bee-handling or for Work in a Bee-yard.

BY E. R. ROOT.

Perhaps some of our readers know that I have been giving talks on bees with practical demonstrations in the handling of them, before church and Y. M. C. A. organizations, at various points in this State, and it has occurred to me that there might be some who will be called upon to do the same thing, and would, therefore, like to know how I do it.

In order to handle bees before a public audience, especially at night, where the lights might draw flying bees, it is necessary to have a portable cage of suitable dimensions, and yet one which can quickly be put in a knock-down condition, to be shipped in a trunk or wooden case.

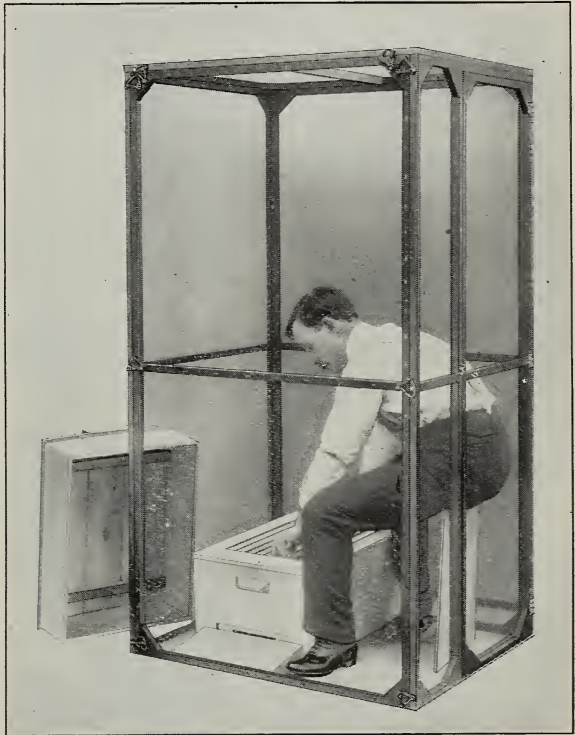
The subjoined illustration shows the cage which I have used in various public demonstrations. It consists of four wire-cloth panels, one of them containing a door, and a top covered with muslin. Each panel is made of a wooden frame stiffened by three corner-pieces secured at the intersections, and covered with wire cloth. Four of these panels are placed up against each other, and securely fastened by means of Van Deusen hive-clamps, as shown. Contrary to what one might expect, these Van Deusen fasteners make a very solid and strong cage, and yet one can, in the space of two minutes, put the whole thing in the knock-down by loosening the clamps and slipping the panels into a large flat oblong box.

After having tried this cage, and carried it over the country to various points, it occurred to me that something of this kind would be very serviceable in an ordinary bee-yard, especially where queens are reared. While one can make up a solid non-collapsible cage, yet in the winter time its dimensions will not admit of its going into any door. For that reason it is desirable to have a structure that can be put in the knockdown and stored away during winter or during that time of year when it is not needed; for it is only during the robbing season that it would be actually required. For the purpose of grafting cells, or performing any extend-

ed manipulation over a colony, it is almost indispensable, for one can work securely free from robbers, with any degree of comfort.

If one were to do a large amount of transferring, he would find a cage of this kind very convenient. There are many bee-keepers who make a business of transferring in a given locality. With an outfit of this sort one can collapse it, put it into a wagon, and, on arriving at destination, set it up, and transfer hour after hour, without any danger from robbers.

We have been using the non-take-down cages in our yard, but, unfortunately, unless secured they will be blown all about the yard. On one or two occasions a gust of wind has caught them, smashing them completely. We have been compelled to fasten them to



A NEW COLLAPSIBLE CAGE FOR MAKING PUBLIC DEMONSTRATIONS OF BEE-HANDLING.

trees or some stable object; but in that case they are exposed to the weather, and in one season are of but little value, as they begin to pull apart. This collapsible cage, with its Van Deusen clamps, permits one to put it out of the weather and into a building just as soon as its use is not required.

The cage here shown is 30×38 inches, and 6 ft. tall. Any good mechanic can make it out of pine strips $\frac{1}{4}$ inch square, and a few yards of screen wire cloth and 16 Van Deusen hive-clamps. It will pay for itself in one season in almost any yard.

BEE DEMONSTRATIONS OF FAR-REACHING VALUE.

Dr. Bigelow in Indianapolis. See p. 30

BY WALTER S. POWDER.

There never was a time when the people were so disposed to rate the bee industry at its true value as now. The honey-bee as a subject for a nature-study is, perhaps, one of the most interesting things in all the world, and no one can study its wonderful nature without becoming greatly interested. This being true, the bee-keeper finds his business the easiest to advertise of almost any line, because of the eagerness of the public to learn.

The present year will long be remembered as one of the poorest honey seasons; but it will also be remembered as the beginning of the era of pure foods and the end of the old story about manufactured comb honey. All in all I have never seen the bee fraternity more encouraged as to the future than today, because of the better markets, better understanding of the industry, and the increased demand for the output of the apiary. Why, it has not been many years since there was very little demand for extracted honey because it was not at all understood. Today the demand for it exceeds that for comb honey, and the demand for granulated extracted honey is increasing each day.

The public is anxious to learn, and those who are so located that they can give demonstrations with a few colonies of bees occasionally will be surprised at the great interest taken. A queen-bee in a mailing-cage on my desk, waiting for the postman, often attracts attention and starts some one to investigating. A helper placing foundation starters in sections has attracted so much attention that at times it has seemed almost annoying.

Perhaps the most interesting demonstration ever given in Indianapolis or in this State was given here recently by Prof. Edward F. Bigelow, of Stamford, Conn. Professor Bigelow was on a lecture-tour, and brought a class of 45 teachers who were taking the summer course at Butler University. His ability in this line of work can not be excelled, and I doubt if it can be equalled; and surely a class never enjoyed a more interesting discourse. He began by mounting a pedestal and first explaining the old straw skep, then the modern hive, comb foundation, comb-building, extracting, rendering wax, etc., and explaining each detail in such a manner that even a child could have understood. Then all went to the lawn where the bees are kept, and here he showed his skill by manipulating the hives and combs of brood, handing each a comb of brood and adhering bees which were accepted with some timidity at first;

but he soon had their confidence, and veils were all laid aside. The duties of the queen, brood in all stages, comb-building, etc., were never better explained, and a happier lot of people never left this honey-store. It would be interesting to know just how many times this meeting has been talked over by those who were fortunate enough to be one of the party.

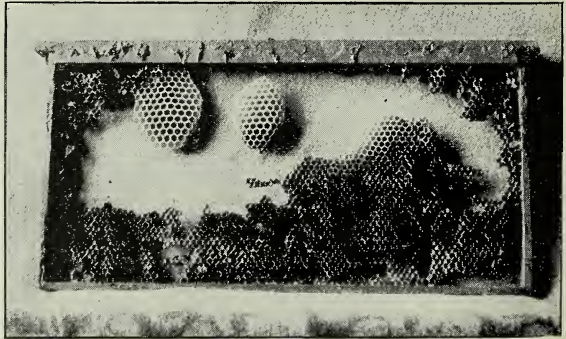
One of the very prettiest little hives for convenient demonstrations is the little Pearl Agnes hive, invented by Professor Bigelow. I have such a hive in my dooryard at home, and I find it to be quite an attraction for my near neighbors. Observatory hives made to contain a single Pearl Agnes frame are the neatest device in all the world for loaning to teachers at public schools, and I am planning to place several as soon as schools begin. The honey-bee is always admired if properly introduced.

Indianapolis, Aug. 22.

SOME PECULIARITIES IN COMB-BUILDING.

BY DR. C. C. MILLER.

Bees generally attach their combs at the top, and build downward. But it is not a very difficult thing to get them to build in the opposite direction. I have known them to do so many times. Take a good colony at the beginning of the honey-flow, and place over its hive an empty hive-body, and it will pretty surely build from the top-bars upward. A peculiarity of combs thus built is that they



COMB BUILT WITH NO SUPPORT EXCEPT THE WIRES.

are less inclined to be straight than other combs. If one were to allow reasoning to the little creatures, it would be as if they should say, "When we build from the top down, we can build straight flat sheets, merely corrugating them a little; but if we should make a flat sheet when building upward it would tumble over of its own weight;" so these upward-built combs, instead of following the direction of the top-bars, or being built across them, twist in all directions, some of them forming almost a circle with a

diameter of 4 inches or more. Pictures of such buildings have already appeared in GLEANINGS, but I think nothing like the present illustration has been shown. Indeed, it is the only case of the kind I ever saw; for you will see at the central part, under the top-bar, that the bees seem to be building in mid-air. In reality that isolated piece of comb is supported by wires, which do not show in the picture because too fine.

A very old comb in very bad condition had been given in an upper story, and incidentally the lesson is taught that, although bees will clean up a very bad job, there is a limit; and if the comb is too bad they will proceed to tear it down. In the present case you will see that nearly half the comb was gnawed down. But at the part under discussion there was left a piece of the septum about as large as a silver quarter-dollar, and upon this they built. This bit of old septum is in the lower part, so most of the building was done upward. You will notice on the under side of the top-bar, directly over the floating comb, that the bees have begun a deposit of white wax, and the sharp point at the upper end of the floating piece shows that the bees would soon have united the two together.

Notice at the right of our floating comb that the bees are building upward upon the old comb.

Marengo, Ill.

[This is an odd specimen of comb-building, and, taken in connection with Dr. Miller's comments, makes a very interesting study. We should be glad to get photos of these interesting or grotesque comb curios and pay for them. While some of them are of only scientific interest others may lead to some practical results.—ED.]

THE PLURAL-QUEEN SYSTEM.

Why it is More Practicable with a Divisible Brood-chamber than with an Ordinary Full-depth Hive.

BY J. E. HAND.

I notice that Mr. Titoff, in an article on p. 1328, asks for information about the two-queen system, and then says that he doubts whether the plan as a whole will ever prove to be a success. I will only endeavor to add what little information I have gained from a limited experience in the use of a plurality of queens in the same hive, although in separate brood-apartments. In the first place I would respectfully refer my doubting friend to an article on page 1330, from his own State, by Howard Davenes. I believe that the only advantages claimed for this system are in building up weak colonies for an early honey-flow and in the prevention of swarming when working for comb honey. It should be remembered that this system like the Stachelhausen plan of shook swarming loses its force when used in connection with the full-depth-frame hive. This fact should be evident to even a casual observer.

I wish to go on record as saying that there is but one system of contraction that is at all practical when we take into consideration the amount of labor involved and the results to be gained by such contraction, and that is horizontal contraction by means of shallow sectional hives. All other methods are but makeshifts that, by the amount of labor involved, are both expensive and inadequate.

This same statement will also apply to the two-queen system, as any one can see who will use a little sober judgment that it would be the height of folly to add to a colony of bees in early spring another full-depth hive with a queen, and only a small cluster of bees, and viewing the matter from the standpoint of the full-depth-frame hive. I can agree with pretty nearly all that Mr. Titoff has to say regarding the matter.

However, with the sectional hive it is far different, and a shallow brood-chamber containing a queen and a small cluster of bees, and some brood, if simply placed upon a strong colony of bees as soon in spring as the weather will permit, will soon build up to a rousing colony of bees. Another section of brood-chamber may be added if desired, after the first has become well stocked with brood and bees. Of course, a queen-excluder is used to keep the queens apart. These colonies, after becoming strong enough, may be separated, or kept together up to or even through the honey-flow according to the time of said flow.

For instance, if the honey-flow comes late in the season it may be desirable to separate the two-queen colonies as soon as they become strong enough, and I believe this is the method adopted by Mr. Alexander, who secures a great part of his surplus from buckwheat. In a location where the main honey-flow comes from clover and basswood it is far more desirable to keep the bees together up to the beginning of the honey-flow. Further than this, there should be no iron-clad rules governing the case, as the further disposition of the colony is a matter to be decided by the operator according to the probable duration of the honey-flow and the consequent liability of the bees to swarm.

If no swarming is desired, and the prospect is good for a fair flow of nectar, I know of no better method for the average bee-keeper, under ordinary circumstances, than the following, which is the Stachelhausen plan of shook swarming, only in our case there is no handling of combs except by hives.

A MODIFIED PLAN OF SHOOK SWARMING ADAPTABLE FOR BEGINNERS WITH THE DIVISIBLE HIVE.

First we will begin at the top of the two-queen hive by blowing a little smoke down between the brood-combs, and fanning it down with a Coggs shall bee-brush. We drive most of the bees down and out when we remove this section of brood-chamber, giving it a quick jerk to dislodge the bees, and place it on a bottom-board. We proceed in like manner with the next, which is placed upon the other. The queen in the upper

part will be either on the honey-board or in one of the sections of brood-chamber treated, and should go with this hive, which is now placed upon a new stand.

We now have the bees of the two hives in one hive with the other queen; and if left in this condition when working for comb honey they will soon cast a swarm, so we will proceed with this hive exactly as with the other, except that in this case all the bees as well as the queen are driven into an empty hive consisting of two sections of brood-chambers with frames filled full of foundation. This hive, having been previously placed below and on the bottom-board previously occupied by the colony treated, it will remain there. The hives containing combs of brood and honey, but no bees, may be tiered up seven or eight high to be drawn on when desired.

In 48 hours after treating, a queen-excluding honey-board is placed upon the hive containing the driven swarm, and upon this a super of sections filled with foundation: after which the bottom section of brood-chamber is removed, and the bees shaken out in front of the hive.

Our object in hiving the bees in the first place in two sections of brood-chamber was to prevent them from swarming out the next day, as they are almost certain to do if hived directly into a contracted hive; and our object in removing the bottom section of brood-chamber after the bees have settled down to work, and given up the idea of swarming, is to contract the brood-chamber so as to force the bees to begin work in the sections at once; and as soon as the work has well begun in the sections, more room may be given by adding another section of brood-chamber containing either combs of honey or combs of brood from the piles that were tiered up, or frames of foundation, at the discretion of the operator; and, according to the probable duration of the honey-flow, such should in every case be placed at the bottom, and directly upon the bottom-board, and in no case should more than two sections of brood-chamber be given with one queen during the honey-flow.

If the honey-flow be of long duration it may become necessary, in order to prevent swarming, to remove one of the sections of the brood-chamber, giving in its stead one containing frames filled with foundation. In this case the empty brood-section should always be placed at the top of the brood-chamber. The queen-excluding honey-board should be removed as soon as the brood-nest is well established and work has well begun in the sections.

We have found that, with a honey-flow lasting four weeks, these extra strong colonies will often make preparations to swarm again unless room is given in the brood-chamber by exchanging frames of brood and honey for empty frames, as stated above. This is on account of the top section of the brood-chamber becoming somewhat clogged with honey. Colonies treated as above will, during a good honey-flow, roll up an amount of comb honey that will astonish some of the

oldtimers who can see no advantages either in contraction or in the two-queen system. "Where ignorance is bliss, 'tis folly to be wise."

I would especially recommend the system, as outlined in this article, for beginners, and especially in locations having a fair to good honey-flow, in preference to the one outlined in my season's work with the sectional hive, which, being somewhat complicated, is better suited for the expert honey-producer, and in locations where it is not possible to secure a crop of comb honey by the usual methods.

The descriptions of these hive manipulations are, of necessity, somewhat tedious in order to make every thing plain, although the manipulations themselves are very rapid.

This article is already long, and yet the subject is not finished. With the editor's permission I will finish it in the next issue.

THE PLURAL-QUEEN SYSTEM.

A Protest Against the Plan; Time and Money Should be Spent in Breeding Better Queens Rather than in Striving to Make a Lot of Poor Queens Live Together.

BY WM. M. WHITNEY.

Mr. Editor:—The discovery of plurality of queens in the same hive seems to be attracting attention, and causing no small degree of surprise, even among old and experienced bee-keepers. It seems somewhat strange that this should be so, as it is a well-known fact that other than mother and daughter have been found in the same hive living peaceably together. If I'm not mistaken, I have read somewhere of an exhibition at some fair in Europe of a hive of bees with four queens living in harmony together. Also, in the third edition of Langstroth by Dadant, on page 222, there is a very interesting account of five colonies occupying one hive, and the same account is repeated in the last revision. It may be said that these colonies occupied different portions of the hive, and acted entirely independently of each other; but the fact remains that they must have had the same scent, and the bees must have mingled, or were likely to have mingled more or less together during the time of their occupancy of the hive, and must have had an opportunity to destroy either of these queens.

In 1898 I thought to experiment along this line, and for the purpose made what is known as a jumbo hive, two stories and double-walled, to contain 16 frames in the brood-chamber, with perforated zinc division-board in the center. With this arrangement I thought to secure, if two queens could be made to live in peace, a large amount of surplus comb honey. After two failures I succeeded in securing queens that the bees tolerated, but not a section of honey did I get from that hive, notwithstanding the sea-

son was a fairly good one, and other colonies produced a fair crop of section honey.

In the following spring I found one of my queens missing. It occurred to me that there were virtually two hives in one, with all the danger of losing a good queen at any time, as well as that of disturbing both colonies in handling one, and the other disadvantages that presented themselves to me caused me to abandon the experiment, with the thought that the game was not worth the powder.

The idea that it is a good thing to have two or more queens in one hive in early spring for the purpose of building up strong colonies does not appeal to me. If, with my management, it required two or more queens to give me good working force for honey-gathering at the proper time, those queens, young or old, would be condemned and executed. I'd give very much more for one good queen than for half a dozen poor ones at any time of year. I should hesitate to buy queens from any breeder who thought it necessary thus to build up strong colonies in the spring, for fear that I'd get the most common sort of layers in time if the practice were continued. Adopt the practice of using only large and well-developed queens; let the management be such that the colony shall be kept warm in early spring, and have the right kind of nourishing food, and plenty of it, then one queen will soon fill the brood-chamber to overflowing with ambitious workers when there is any thing to be done. Such will be found to be a colony in normal condition, and nothing better could be reasonably hoped for.

If I may be permitted, I'd like to illustrate what I mean by giving an example from my own yard. My apiary is pretty well known as having strong colonies in the spring. For example, let us examine No. 25, which is a fair sample of hives in the apiary, so far as numbers are concerned—a two-story double-walled hive with 9 Hoffman frames in the brood-chamber and 10 in the second story. On June 5 this colony swarmed. I captured the queen and put the cage containing her in my pocket and awaited the return of the bees. In the mean time I prepared three hives for use in dividing the colony. When the swarm had returned, and become quiet, I removed the cover and found not only the hive proper but the two-inch air-space outside of the super literally filled with bees. Selecting a frame of brood containing one or more nearly ripe queen-cells for each of the three hives, I proceeded to remove the ten frames of brood and bees from the super to the center of these hives, making as nearly an equal division as possible; then I shook bees from some of the frames of the brood-chamber into each hive; filled them at the sides with empty combs, when they looked, for all the world, like fairly strong colonies. Then I filled the super of the parent colony with ten more frames of comb, and released the queen. These newly made colonies at the time of swarming may be placed immediately anywhere in

the yard without danger of bees returning to the parent hive, which is not the case at any other time; but, to return to the parent colony.

On the 5th of July, the record shows, I examined it and found the super fairly well filled, and considerable of the comb capped. I put a section-case on top of the super, but this was done too late; for on the 13th another swarm emerged. I took off the super, cut out the queen-cells, and added two more section-cases, hoping to secure comb honey; but the season immediately changed, so that only about one case was secured. I extracted about 50 lbs. from this hive—40 from one of the new colonies; 30 from another, and took two-thirds of a case of comb honey from the other; besides, each put in stores enough for the winter.

Now, the point is this: What would any one want of two or more such queens in one hive? I do not know what I'd do with half a dozen of Root's \$25.00 queens in one hive. Can you tell? But such queens are just such as I want, and I'll have no other if they can be obtained.

I forgot to say that, at the last cutting of queen-cells, three hatched at the operation, which I used for requeening. They are from the stock of that old queen I have thought so much of, and have tried to perpetuate in my apiary.

Lake Geneva, Wis.

[The Root \$25.00 queens are very scarce with us; that is to say, we seldom find one good enough to bring that price. If we could get plenty of such queens there would be no need of discussing this plural-queen system, as there would be nothing in it. To go a little further, could we stock a whole apiary with even three or five dollar queens? It *can* be done at considerable labor and expense in weeding out stock below this grade; but how could we *know* the first season, and before the honey-flow, that *any* queen would be a good one? As that does not seem practicable, is it not advisable to run two queens to the hive, and then, if one of them should prove to be of little value, the other, according to the law of chance, would make up for the deficiency of the other? By having two or more queens to the hive we reduce the chance of failure of a whole hive, and at the same time make more sure of getting something for the labor expended.

Then, moreover, if at any time we run short of queens we can draw from a colony that has one to spare. At all events, after the honey-flow the chances are that the colony will cut down its queen force to one.

If we run the yard on the two-queen plan, by all means strive to make the two just as good as if we were rearing only one to the hive. This would give us two queens, one of which ought to be a good one, even if the other were not.

It is not wise just yet to predict the ultimate success and general adoption of the two-queen system. Candidly, we don't know what the future is to be.—Ed.]

SOME SWISS COMMENTS UPON AMERICAN STATEMENTS.

A Translation of a Letter from Dr. K. Bruennich.

BY DR. C. C. MILLER.

I have received from Dr. K. Bruennich, the Swiss authority, an interesting letter in which are some comments upon things Swiss and American that I am sure will be of general interest. I'm too poor a German scholar to give a literal translation, but will take the liberty of giving a very free translation, begging the good doctor's pardon if in any way I misinterpret him.

"Americans are apt to depreciate our hives (which are mostly handled from behind instead of above), but unjustly. They forget that the high price of land here forbids spreading out hives of the American pattern, and so we are driven to the use of the pavilion, which allows colonies to be tiered up. This plan is not without advantages. In the pavilion there is the mutual conservation of heat, and practical operations may be carried on under cover, without any fear of robbers—two very important advantages."

Yes, I've no doubt, doctor, that some of our leaders would view things quite differently if they should for a time take up their abode in Switzerland; and possibly a sojourn in this country would also change some Swiss views. There's a good deal in the way one is brought up; a good deal in fashion. For example, in this country we have an outlandishly absurd way of spelling; but when President Roosevelt, who has pretty much his own way in every thing, attempted to spell a few words in a decenter manner, it raised such a hubbub that for once he had to back down and give up to the fashion.

"Referring to GLEANINGS, p 822, I must say that, with all due respect to you, I am not yet convinced that a pure strain of blacks, as we cultivate them here, would not be the best for you, even under *your* conditions."

I wonder upon just exactly what you base that belief, doctor. Perhaps upon the fact that the great majority of Swiss bee-keepers have found that the native blacks in their purity give better results than any other race or mixture of races. But facts all run the other way here. In hundreds and hundreds of cases Italians side by side with the blacks have shown their superiority over the blacks so plainly that there can be no question left; and when I can get 10, 20, or 50 per cent more honey from Italians, or from a cross containing Italian blood, do you blame me for not wanting pure blacks?

I think you Swiss put considerable stress on the matter of *native* stock as being better adapted to the country. Please remember that blacks are no more native than Italians in this country, all bees being imported. Perhaps, too, we Americans are too new a nation to have very much reverence for things old and established. At any rate, the word "imported" has quite a charm for us.

I sometimes pay double price for a pound of Swiss cheese, and I suspect that just a little of its superior flavor is due to that magic word "imported." Perhaps it would not be a bad thing to "import" from Switzerland some of the best black stock and see if it might not be an improvement. Almost certainly it would be an improvement over the black stock we have had, if not over the Italian.

Dr. Bruennich wonders that so excellent a journal as GLEANINGS should publish what he does not hesitate to call "blooming nonsense" on p. 831, under the heading "An Improved Strain of Bees." There is a "blend" of three different kinds: "Cyprians for their get-up and get; Carniolans for gentleness and white cappings of comb honey, and Italians for compact brood-nest, non-swarming disposition, and color."

Well, doctor, an ignorant German Swiss like you can not understand such things. It takes those Texans. They say some magic words, and from each variety comes its specially good virtue and none of its faults. Now if *you* should try the thing over in Switzerland, without the magic words, it might turn out something like this: "Cyprians for their vile temper, Carniolans for swarming, and Italians for any bad trait they happen to have."

Seriously, in this country we pay too little attention to theory, and among those of us who have been working the hardest to get crops of honey there is very little known about breeding bees in any thing like a scientific way.

"Page 895 needs a correction, where it is said that Switzerland is the homeland of the leather-colored Italians. These bees never appear across the Alps from Tessin, and so are quite isolated in that canton from Switzerland in general, where we cultivate black bees and will have nothing to do with the yellow bees, which have absolutely not stood the test with us, and are far outstripped by the blacks."

"Among the names of prominent scientific men connected with the bee industry in Switzerland, as given on page 895, Kramer should have taken first rank, who by his colossal labors has accomplished more than all others. He it is who established our apistocal stations, sifted and collocated their results; he it is who established our 'beleg-stations,' drone-proof places where virgins are sent for fertilization; and he yearly assembles more than a hundred queen-breeders for a conference regarding matters connected with queen-rearing and improvement of stock. A great mass of valuable discussions and investigations come from his pen. Prof. Burri is no bee-keeper—only a bacteriologist, but a fine one.

"Page 1018 also has its errors. The movable frame was invented by Berlepsch (in some unaccountable manner no biography of Berlepsch occurs in the A B C), next to Huber the most important investigator in the realms of bee culture."

Whatever Berlepsch may or may not have

done—and I fully accord to him great credit—unless I am entirely misinformed, Langstroth invented the movable frame without any knowledge of what was done by Berlepsch, and I think that, in point of time, the invention of Langstroth was prior to that of Berlepsch. And from whatever source bee-keepers across the water may have first got the movable frame, it is a fact that I think you ought to be willing to recognize, *that American bee-keepers got the movable frame in its present usable form, not indirectly but directly from Langstroth.* From personal acquaintance with Langstroth, I am convinced that, if he had had the slightest hint of any thing done by Berlepsch looking toward the invention of the movable frame, he would have been the first man in the world to acknowledge it.

"On page 1018 the first grafting method of rearing queens is given at about 1874. More than 100 years ago Huber transferred larvæ from one cell to another. The works of Huber should be read by every bee-keeper, containing as they do a fullness of interesting experiments almost totally forgotten, which deserve again to be brought to light.

"The last remark of W. K. M., page 1018, again shows plainly the attitude of certain Americans, from whom you are excepted."

Certainly we ought to be a little slow about calling a people slow from whom we have received so much that is valuable, and least of all the Germans in Switzerland, who are in the front line in more than one regard. When it comes to the matter of scientific queen-rearing, Switzerland leads the world, and in their presence we are as babes before giants. But we have a young man in Washington, Dr. E. F. Phillips, of whom we are very proud, and we are looking to him to give us a start on the road to overtake the Swiss, so that queen-rearing may rest upon a more scientific basis.

The time has come when I am glad to say that the peoples on the two sides of the big pond are beginning to stop making faces at each other, and trying to get all the mutual help they can; and it is to be hoped, Dr. Briennich, that you will keep whacking away whenever you see any of our faults to whack at, and at least some of us will take it in good part, with the cordial feeling "We be brethren." *Ja, wir sind Brueder.*

Marengo, Ill.

[I shall attempt to answer in as few words as possible. Southern Switzerland, particularly the region of Bellinzona, is certainly the place from which many leather-colored Italians came. The old files of the *American Bee Journal* (see advertising pages) bear abundant proof of this. For example see last page of the May issue, 1872, *A. B. J.*; also page 231 for 1873 of the same journal, an article by the late Charles Dadant. Moreover, I quoted figures quite recently to show the Swiss are by no means unanimous in favoring the native black bee. By their own figures (see *GLEANINGS*, page 1135, Sept. 1), they regard hybrids very highly, and a number prefer Italians (Swiss Italians).

As to the assertion that Berlepsch invented the movable frame, there is no ground for it. He brought out his hanging frame in 1855, four years *after* Langstroth. Huber invented movable-comb frames in 1789, before Berlepsch was born. At the present time the Germans are rapidly adopting the Langstroth system. They are now imitating our hives to the smallest detail, long after the British, French, Belgian, Italian, Spanish, Australian, Russian, and American bee-keepers. It is true, Huber did transpose bee larvæ, but he was no German; on the contrary, they were about the last to accept his teachings. If we owe anything to Berlepsch we should like to know what it is. The *A B C* does not contain his biography, it is true; but it also does not contain any thing about Swammerdam or Reaumur—two giants whose names will live long after Berlepsch is forgotten. When the Germans come to this country, in a few years they soon adopt American ways; and I doubt not they greatly excel the Germans left in the fatherland. Look at Wagner, Grimm, Stachelhausen, Hoffman, and Greiner. They joined on German "theory" and American inventiveness.

I admit too many of our "scientists" have turned out to be "nature fakirs." Europe is not altogether free from the same trouble. Science is popular now, and all sorts of people masquerade as "scientists." America has no monopoly of this either. This is the reason why our bee-keepers are so skeptical about "theory." They do not know when they meet a real *savant*. We are not alone. France is not one whit behind Germany in scientific research, and yet it does not accept German ideas any more than we do. Neither does England.

Burri is undoubtedly a great investigator in his chosen field, and the University of Zurich is second to none. More than a year ago I sent to President Kramer for his photo for a write-up, but thus far we have not had the opportunity to place him before a *GLEANINGS* audience. I agree with you we owe all our progress to scientific men, and we Americans worship money-making "practical" men far too much. We are not alone in that either.—W. K. M.]

TRANSPARENT PAPER WRAPPERS FOR SECTIONS OF COMB HONEY.

Transparent Paper Bags Suggested; These to be Made Just the Size of the Section; the Opinion of a Prominent Commission Man on the Subject.

BY R. A. BURNETT.

Mr. Root:—We have just read Mr. Sackett's article in your issue of Dec. 1, also your comments thereon. We are inclined to agree with both your conclusions and his. The wood strips in the bottom of cases, when fastened in and made to fit exactly with the sections, help very much where there is only a little leakage from unsealed cells; but where

one or more combs are jarred from the wood they are of very little service. This idea would be practically the carton, with the advantage of being transparent (which is a most desirable thing). The extra cost of preparing the case, such as the no-drip case, would, in our opinion, offset the cost of papering the sections after the fashion described, as they would then be put in a perfectly plain case; and if even half of the sections should be broken from the frames the remainder would be uninjured where the paper itself was not broken. It occurs to us that the paper could be made as a bag is made, and the sections slipped into them and then secured with mucilage or some form of paste.

To-day we were going through some honey that came in carriers, containing eight cases. Some of the comb had broken out of the frames, and had leaked sufficiently to fill more than the space between the strips, thus necessitating new papers in the bottom where the strips could be removed. In this instance the nails used were cleated, and this made it difficult and in some instances impossible to put the case again in good order. It would seem as though before another season different experiments could be made with this idea, and a heavier weight of paper secured than has been tried. At any rate, it is one of the devices that appeal very strongly to us, and we hope by your January or February issues sufficient progress will have been made with the idea already demonstrated as practical, that will insure its coming into use next season with those who have to order supplies.

Chicago, Ill.



WHITE ITALIAN CLOVER TRIED TWO YEARS
AGO, AND ALMOST A FAILURE BOTH
FOR HAY AND HONEY.

Two years ago I bought some seed of white-blooming and some of the old standard kind of crimson clover from the firm mentioned on page 1385, and sowed them side by side at the same time, and on land prepared the same way. The regular crimson clover made a good crop.

The white-blooming was so late in starting in the spring that the weeds got ahead of it, and it was almost a failure. I did not feel that I had any ground of complaint against the introducers, as at that time about all the difference they claimed for it was that it was later and had white blossoms. Since reading the article by W. K. Morrison I have looked up their latest catalog and am quite surprised at the claims they are making for it.

As to its honey-producing qualities, I can not remember that I took any notice of it. I have never known bees to fail to work the regular kind very freely as much as or more than any plant I know.

Barboursville, Va. A. R. LOCKHART.

THE BEST TIME TO REQUEEN; J. E. HAND RE-
CONSIDERS.

Upon further experimenting with a view to determine when is the best time to requeen an apiary I am led to change my views as expressed in my article on page 1586, Dec. 15; and with my present light upon the subject I now consider the latter part of the season, and after the close of the honey-flow from basswood, which, in my location, is about July 20, to be the best time to requeen an apiary. One reason for this is we have found that queens reared at this time will keep up brood-rearing late in the season, and will have stronger colonies the next spring; and the other reason is, that the time of our cell-building colonies is not worth any thing at this time, and therefore it costs less to rear queens, since we are out only a very little labor.

J. E. HAND.

Birmingham, Ohio.

ACID FOR DISINFECTING FOUL-BROODY
COMBS.

One of your readers at this place writes to ask if it is not practical to dip foul-broody combs, where it is dried to a scale, or nearly so, into a bath of diluted acid or other liquid disinfectant. He adds that, if he is correctly informed, a weak kerosene emulsion will effectually kill the San José scale, and that gasoline is sure death to germs of almost any kind; and as wax is in no way injured by acid he does not know why some agent of this kind could not be employed to aid in the battle with foul brood. Will some accommodating expert grasp a foul-brood germ by the hind legs and jam his head into a bottle of muriatic acid, then examine him in his microscope, and give us the result?

Jamul, Cal.

BEN BIDDLE.

[We hardly think the acid bath for diseased combs would be effective. Better by far melt them up.—Ed.]

THE RAT PROBLEM.

A year ago we moved on to this place, and it was the worst-infested place one can imagine, and has been for the last 24 years that we have been acquainted with it. We were fully determined to get rid of the rats. We got four different kinds of traps, and then tried every thing we could hear of; and when you said "rat biscuit" my husband laid in a supply at once; but they were like all the rest—just seemed to act like a tonic, and still the rats came. At last one of our hired boys told me he had seen a sure cure for rats, in a paper. I told him to tell me quick, as we were at the point of collapse. He said, pour syrup, or any thing the rats are fond of, on to a board and sprinkle with

dry concentrated lye. As I had found the rats preferred nice firm ripe tomatoes to any thing else I had on hand, I sliced up several about $\frac{1}{2}$ inch thick, and placed in different parts of the house. In the morning they had eaten all I put out. The second night they ate half as much. The third night only a few pieces were gone. The fourth night they did not touch the tomatoes nor any thing else, and we have not seen or heard of a rat or mouse in the house since, about six weeks ago. A couple of weeks afterward Mr. Shank said there were as many as ever in his barn and granary, and he thought I had only driven them out to the corn; so I fixed the tomatoes the same as before, with the same effect. The third night was the last. We think it is truly wonderful to be without the horrible things, so we just concluded to let you tell others.

Just sprinkle the dry concentrated lye (I use the Banner, as it is so handy) on the top of the tomatoes. Other articles may do as well.

MRS. L. B. SHANK.

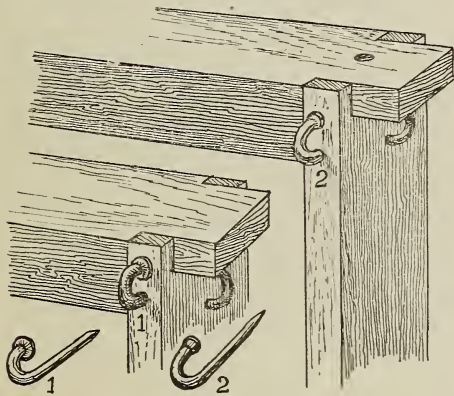
Jenny Lind, Cal.

BENT NAILS FOR FRAME-SPACERS.

What do you think of this idea for spacing-nails?

L. E. SCHERER.

Jersey Shore, Pa., May 29.



[The arrangement here shown, if properly applied, is excellent; but in the first place it is difficult to bend the nails, and, in the second place, it would be more difficult still to bend them all with *exactly the same curve*, for it would be important to have the bee-spaces alike. In the third place, one would have to bore a hole in order to drive them into the frame, for the reason that the hammer-head would strike one side of the line of penetration of the wood, bending the nail over. Taking it all in all, the ordinary staple is much easier to insert, and far cheaper.—ED.]

MEETING OF THE MASSACHUSETTS SOCIETY OF BEE-KEEPERS.

The Massachusetts Society of Bee-keepers held its second meeting in the Ford Building, Ashburton Place, Saturday evening, Decem-

ber 7. President Farmer presided. There were thirty present on this occasion, and all seemed to enjoy hearing the different speakers. After the routine business, the meeting was given into the hands of the members.

Mr. Barret, of Hyde Park, spoke first on the duty of the bee to the flower in the transferring of the pollen, referring especially to such plants as have male and female flowers on different individuals. Mr. J. S. Chase, of Malden, the veteran fruit-grower, followed in the same line, speaking particularly of the work of the bees with reference to grapes, of which fruit he has been a grower for thirty-five years. He laid stress upon the fact that species do not come true from seed, and illustrated his point by his own experience with seeds of Delaware grapes from which he had obtained many varieties of grapes of all colors, but never a Delaware. His fruit has several times taken the first prize at the Massachusetts Horticultural Society.

Mr. Chase showed a model of a storm-door for his hives for winter, in which all felt great interest. Mr. Chase spoke of his new bee-feeder that consisted of a box 25 inches by 15, and 5 inches high, made to cover the frames. A piece of glass was fitted over this diagonally from the bottom of one edge to the top of the opposite side. Over this was the cushion. Thus he was enabled to lift the cushion and observe the condition of his feeder without cooling off the bees.

Mr. Adams, of Byfield, Mass., and Mr. Richardson, of W. Medford, two vice-presidents, were chosen at this meeting; then after an informal recess, during which we all enjoyed ice cream and cake furnished by our president, F. H. Farmer, Mr. Hawkins, of Everett, described the Atwater method of transferring by use of a tube from one hive to another as given in the *Bee-keepers' Review*.

Mr. Richardson also told of his experience of four years.

Our next regular meeting will be the first Saturday in January, 1908, in the afternoon. As there are only four more meetings we hope for a good attendance.

Belmont, Mass.

X. A. REED.

CAGE THE QUEENS WHEN SHAKING BEES ON TO NEW COMBS.

It has not been clearly stated in the journals that it is necessary to cage the queen when the bees are shaken on to new combs. One of our bee-men of Tulare, a Mr. Gambel, had 78 colonies shaken on to frames of foundation for foul brood, and none of the queens were caged; 75 out of the 78 swarmed, and went to the woods.

Tulare, Cal.

T. J. BARRINGER

COVERING CRACKS IN HIVE-COVERS.

I use muslin bats for putting over joints on covers for hives. Get heavy bleached muslin and cut the length needed, and 8 inches wide. Cut in lengths long enough to lap over the edges; lay this in paint, and, when put on, give a good coat of paint. I

have used this kind for over 15 years, and would have no other. Try this and be convinced.

C. H. MCFADDEN.

Clarksburg, Mo.

[One or two others of our correspondents have described this same thing and pronounced it good; so we must conclude that this method of protecting hive-covers is not only practicable but easy of application.—Ed.]

MORE THAN ONE QUEEN WINTERED IN THE SAME HIVE.

Friend Root:—In regard to plural queens wintering in the same hive, perhaps I can throw a little light upon the subject without waiting until next spring. While I am not a plural-queen bee-keeper, for the past three winters I have had two queens winter in one hive.

I always clip my queens in the spring, long before there are any queens hatched or drones to fertilize them if queens were hatched.

In the spring of 1905, when clipping, I found a clipped queen and an unclipped queen in the same hive (apparently mother and daughter), and both were busily depositing eggs on the same comb and on the same side of it. I left the young one without clipping, and opened the hive frequently, only to find both busily engaged as before; but along about the middle of the summer I could see the old one was failing, and continued to grow weaker, and finally disappeared. Then I clipped the young one. This was at an outyard.

The spring of 1906 I was clipping the home yard the latter part of April, and I found two unclipped queens in one hive (apparently sisters, as they looked exactly alike), both busily engaged in depositing eggs on one comb, though on opposite sides. I clipped both and removed one to supersede an old one. Both did good work all summer, and again the past summer, and I think they are both still alive.

Last spring, when clipping in the home yard I found one clipped and one unclipped in one hive—apparently mother and daughter—both depositing eggs; but the old one seemed somewhat feeble, and did not live to exceed a month. Some skeptic may say this was accidental, and the young queen came from some other hive after they were removed from the cellar; but, not so; and, even were it probable, how would they explain or account for the two *young* ones in the same hive? I had no deserting or swarming out, and cases were exactly as stated. I mention this merely to refute any such argument as might be advanced.

ELIAS FOX.

Hillsboro, Wis.

[The cases that you cite, of mother and daughter both doing service at the same time in a hive, are so common as to excite hardly even a passing comment. It would not be at all strange if a pair of such would get along peaceably in the same hive over winter; but it is remarkable that two daughters after the old queen disappeared, while they

were virgins, should not have had a battle royal, with the result that one of them was killed. Apparently in the case given there was no conflict, but, rather, they both went to work laying eggs, and would probably have continued to do so as long as the colony prospered. But during a dearth of honey, probably one of them would disappear if not removed by the apiarist.—Ed.]

BEEES CHOOSE A LOCATION BEFORE SWARMING.

I am pleased with GLEANINGS, and do not know how I could do without it. In the Dec. 1st issue, page 1507, is a statement by Mr. G. C. Greiner which seems to me the most correct of any I have yet read concerning runaway swarms. I have known a prime swarm to issue, leave without clustering, and enter a tree. The owner, being a swift runner, followed the swarm to the tree, about half a mile distant, and cut the tree. In less than two hours after, bees entered. He found combs six or eight inches long. Did the bees not prepare a home and build some comb? They were new, and had just been built. The old queen as a rule gives warning by a piping the same as a young virgin does in after-swarms.

Carbon Black, Pa.

WM. F. EBERT.

[Swarms will very often leave without first clustering. It may be in such cases that the scouts have located the tree, and lead the swarm to it direct.—Ed.]

CAUCASIANS NOT AS GOOD HONEY-GATHERERS AS THE ITALIANS.

I have two colonies of Caucasians from Washington that seem so energetic in plastering with propolis every opening about the fences, sections, and frames, that they do not gather as much honey as the Italians and hybrids. I now have enough Caucasians. I will Italianize my apiary a little later.

Pickel, Tenn.

F. R. C. CAMPBELL.

KING BIRDS.

Mr. Doolittle, in the Jan. 15th number, talks of the king birds. His experience tallies with mine, except that I never saw them bother the bees only when there was a drone flight on, and so far as I could see (and I have watched pretty closely) they caught only drones or queens. A shotgun is the only effectual remedy that I know of.

Sheridan, Can.

W. I. DEVLIN.

[We have seen them actually catch bees.—Ed.]

DUCKS IN AN APIARY.

How would it do to keep ducks in the apiary for keeping the grass down? Would they eat the bees?

B. F. MILLER.

Memphis, Tenn.

[We hardly think so, as we had ducks in our bee-yard all last season, and experienced no trouble.—Ed.]



OUR HOMES

by A. I. ROOT

The wrath of man shall praise thee. — PSALM 76: 10.

On page 1216, Sept. 15, I quoted from the Pabst beer advertisements that the United States Department of Agriculture "Officially declares beer is the purest and best of all foods and drinks," and I lamented that the Department of Agriculture declared we had no laws to prevent the use of a statement that it did not make. As this same advertisement was accepted by a great number of papers I feared many good people might be misled by it. Well, their statement has done good after all in bringing out strong protests and denials from both the clergy and able physicians and surgeons. See the following:

Dr. S. H. Burgen, a distinguished surgeon of very long practice in Toledo, O., says: "Beer-drinkers are absolutely the most dangerous class of subjects a surgeon can operate on. Insignificant scratches are liable to develop a long train of dangerous troubles. Sometimes delirium tremens results from a small hurt. It is dangerous for a beer-drinker even to cut his finger. All surgeons hesitate to perform operations on a beer-drinker that they would undertake with the greatest confidence on any one else."

Now read this also, from the Cleveland Plain Dealer:

Temperate drinking, and the moderate use of beer, especially, were strongly condemned last night by Rev. Charles Bayard Mitchell, pastor of the First Methodist Church, in a sermon on "The Devil's Popular Bait."

"Nothing is more harmful to good health," he said, "than the so-called temperate use of beer. It is the most dangerous form of intemperance. A prominent physician affirms that forty-nine out of fifty cases of Bright's disease under his care were cases of beer-drinkers."

"The Northwestern Life Insurance Co., with its home office in Milwaukee, whose beer has made it famous, will not grant a policy to the lager-beer brewers, their clerks, book-keepers, or anybody else employed about the factory. They say, 'Our statistics show that our business has been injured by the shortened lives of those who drink beer.'"

"It is known to all intelligent men that beer-drinking clogs up the liver, rots the kidneys, decays the heart and arteries, stupefies the brain, chokes the lungs, and loads the body down with dropsical fat."

"Intemperance is the strongest besetting sin of young men to-day. More young men are being ruined in body, mind, and soul by this insidious evil than by any other agency of hell. This is due to the fact that the business is so profitable."

"Intemperance stands in the way of your business prospects. It will ruin you socially. It will destroy your character. If you haven't touched liquor, don't. There is no such thing as moderate drinking."

After reading the above two statements, what do you think of the Pabst people, and their statements in regard to their various concoctions besides their "famous" beer?

WHAT HAVE YOU TO BE THANKFUL FOR?

In the issue of the *Sunday School Times* just before Thanksgiving day, the editor gave the replies of *thirty-one* men and women of national reputation to the question, "What have you to be thankful for?" I should like to give a lot of them, but can take space for only one, which see above:

From *Bocker T. Washington, L.L.D.*, Principal of Tuskegee Normal and Industrial Institute.

First, for the opportunity to work. Work is the greatest blessing that a good Providence has conferred upon the human race. Any one who has learned to love work for its own sake can not fail to be supremely happy. The man who has something to do is to be envied; the man who has nothing to do is to be pitied. Again, for the opportunity of exerting some influence in the world for the uplift of humanity. Thirdly, I am thankful for a serious and great problem to engage my attention and my activities.

Perhaps the above does not strike everybody as it does my particular self, but I believe it to be true that, during all my life thus far, I am happy only when I am busy. It is always a punishment for me to be obliged to sit still and wait for something or for somebody. Of course, I like to rest when I am tired; but I can't get a real good *restful* rest unless I have something to read—that is, something elevating and profitable; and I also want sleep when my physical machinery gives notice it is not in shape to do its best; and I dearly love the sleep that puts me in "good repair" for work once more. When I feel unable to do hard work I enjoy getting hold of my light hoe or a hammer and saw—anything to "keep busy," for Satan always *does* "find some mischief for idle hands to do."

TURNING ON THE LIGHT.

I sincerely hope some of you have been induced to subscribe for the *Sunday School Times* just because of the frequent extracts I make from it. Here is another:

There is no answering the straight answer that President Roosevelt makes to those who, writhing in the toils their own hands have wrought, savagely accuse him of causing their disaster, when he says, "I was responsible for turning on the light, but I was not responsible for what the light revealed." Let us remember this in all our choices. We, and we alone, are responsible for the wretched harvest that is sure to follow the seed-sowing of sin.

I believe it is true that quite a few, and some very good people, have felt that our President has sometimes been a little too abrupt; that he might, perhaps, have averted the panic, and "stringency," that have been so much discussed, if he had let on the light a little more gradually; and this reminds me of reading about a father who came into the parlor one evening and suddenly turned on the electric lights, and found his daughter and a young man both occupying the same chair. Was it the father's duty, do you suggest, to find out if any one was in the room before he went in thus suddenly? *Not at all.* Nothing should ever be going on in *any* home, that would cause embarrassment by turning on the lights; and, furthermore, nothing should be going on in our *whole great nation* that would bring consternation to bankers, politicians, or anybody else, if our President should take a sudden notion to turn on even the *search-light*.

THE \$10.00 SECRET AND THE \$1.00 SECRET
FOR SELECTING THE LAYING HENS.

I have succeeded in getting both the above secrets without signing any contract not to divulge, and without giving any promise

whatever. It is true I did have some correspondence with Walter Hogan, and I sent him \$10.00, telling him I could not sign any contract. He returned the money, told me of his misfortunes in disposing of his invention, etc., and said he would like to have me test his discovery. I then gave him my promise not to divulge any thing he might submit to me. He has, however, at this date, Dec. 18, never submitted any thing; but one of our subscribers sent me some time ago Hogan's seven-page (\$10.00) pamphlet which he purchased for one dollar, and that, too, without any promise to keep the secret. I have given you the above particulars lest any one may accuse me of getting the "secrets" by any dishonorable means. I procured the \$1.00 "Potter secret of selecting the laying hens" by simply sending \$1.00 for the little pamphlet of 32 pages. I did not sign any contract not to "divulge," but *they* wrote my name in the contract with a *typewriter*. Had they put my name in with pen and ink it would have been forgery.

Now, friends, what do you think of this whole business—taking \$10.00 for a seven-page printed pamphlet, and \$1.00 for a 32-page printed pamphlet, and extorting a "promise not to tell"? According to their printed claims they have taken *hundreds* if not *thousands* of dollars from poor hard-working poultry men (and *women*), for these celebrated secrets. Is it honorable, and is it in keeping with the spirit of the times, with the usual mode, let us say, of giving and receiving knowledge?

THE GREAT SECRETS.

I say secrets, for both are one and the same thing, and I have no means of knowing who is the real inventor—Hogan or the Potter folks. More than 50 years ago, when a boy, I discovered I could tell by taking my "pet biddies" off the roost, the night before, which hens would lay an egg next day, by placing my fingers between the pelvic bones. The egg is often, if not always, so near perfect that it can be plainly felt, and these pelvic bones are at such times more or less widely separated. All Hogan or Potter claims to have discovered is that all great layers have space enough between these pelvic bones to allow three fingers to drop into the space.

All moderate layers will permit only two fingers; and where there is space for only one finger, the hen or pullet is not laying at all, and sometimes has never laid an egg, and probably never will. In a flock of 70 hens, three or four were found, we are told, that never *had* and never *would* lay an egg. The stupid farmer (and, very likely, poultryman, that *thought* he was up-to-date) bought grain for such hens, and kept them year after year, while he just *threw* away his money, or his corn and wheat, which amounts to the same thing. One large establishment in New York State, that I visited, tested their hens by putting four in a pen. If they got four eggs a day, of course all four were laying hens. Trap-nests sort out the consumers and producers, to be sure, and make a *sure thing* of

it; but Hogan and Potter claim their secret does in a few hours what would require days and weeks of hard work. No doubt these inventions are valuable; but why in the world have we not, among all our poultry-journals, one with enough enterprise to get hold of this whole business, and discuss it openly, instead of letting these fellows parade and "peddle" their secrets as they have been doing year after year since 1904? There is a lot of other similar work *still* going on in the poultry business; for instance, asking enough money to buy a good-sized poultry *book*, for something printed on a slip of paper but little larger than a postal, or possibly a two or four page leaflet.

The beautiful catalogs now being sent out by the manufacturers of incubators and brooders contain a vast deal more information, free of charge, than you get from these chaps that take fifty cents or a dollar for a printed leaflet that costs them only a fraction of a cent. Of course, it is right and proper to get something for your inventions; but when you ask and take a dollar, give in return a decent-sized book that gives a lot of other valuable information.

CHICKENS WITHOUT A BROODER; NOT ONLY IN FLORIDA BUT AWAY UP IN NEW HAMPSHIRE.

Mr. A. I. Root:—I have read your Home paper in GLEANINGS for March 15, and I am going to offer you a suggestion from my long experience with poultry. I have raised hundreds of chickens with no other brooder than a common stone jug filled with hot water. I put the jug in an ordinary shoe-case, which I can buy for 10 cents here; put sand in the bottom of the box, and cover over the box a thickness of burlap, usually a bran-sack ripped open. Such a brooder will mother about 25 to 30 chicks. Sometimes I wrap burlap or old flannel around the jug and use the water a little hotter if the night is cold.

Our incubator holds 360 eggs, and this is the only brooder I ever use. I think it would beat a flatiron, even in Osprey, Fla. MRS. SUSIE A. HYDE.
Canaan, N. H.

MY STRAIN OF WHITE LEGHORNS $\frac{1}{4}$ GAME.

Friend Root:—You will notice (in the lot of poultry we are sending you) one old hen clucking. She would slip into the house and lay behind the front door; then she wanted to sit, and begged so hard that "Em" says, "Old lady, if you *will* sit, I want you to spread yourself," and gave her 20 eggs, and she hatched 20 chicks, 19 white. They are about like half-grown quails, rather small to wean. I send you 21 young hens and one young rooster besides the six old ones. I. T. SHUMARD.
Osprey, Tex., Nov. 20.

The above report is from friend Shumard, as he sent my chickens up here to Braidentown. If they continue to hatch 20 chickens from 20 eggs I shall be very glad.

A REMEDY FOR "GRIP;" GOD'S MEDICINES, ETC.

Mr. A. I. Root:—I have often thought of writing you a personal letter when reading your Home talks, as I enjoy them so much.

I have all my life worked outdoors, and have slept in one of those log cabins where it was ventilated in spite of us. I have had very small doctor's bills. I believe ten dollars would pay every particle of doctor and drug bills for the past ten years. I generally trap in winter, and have often waded the stream when the ground was covered with snow. It's better for grip than hot tea or ginger stew and whisky.

Rocky Mount, Va.

J. B. OVERFELT.

Clearing Sale!

**SPECIAL PRICES ON ROOT'S GOODS,
Such as have Never been Offered Before.**

In place of a New Year's gift to our friends and patrons we are going to offer something special which we have hitherto never been able to offer.

We have an immense stock—a warehouse 40x250 feet filled with The A. I. Root Co.'s make of bee-keepers' supplies of every description, and on many articles we are overstocked. A number of articles have advanced in price; but we bought this stock before the advance, and are going to offer some, on which we are overstocked, at remarkably low prices for cash with order. This offer will be good only until January 15, or so long as the stock lasts. The following is a list of the special prices. At the left you will find the designation as given in our catalog. Orders must be given in lots of 5, 10, or multiples thereof.

2P 8-frame supers with plain section-holders, fences, bevel cleats, and springs for 4¼-in. plain sections, 33c each.

2P 10-frame with plain section-holders, fences, bevel cleats and springs for 4¼-in. plain sections, 37c each.

4P 8-frame plain section-holders, fences, bevel cleats, and springs with 4¼-in. plain sections and foundation starters, 49c each.

4P 10-frame shallow supers with plain section-holders, bevel cleats, and springs with 4¼-in. 54c each.

2M 8-frame Danz. supers with hanger-cleats, Danz. section-holders, M fences, springs cleats, and wedges for 4x5-in. plain sections, at 46c each.

2M 10-frame Danz. supers with hanger-cleats, Danz. section-holders, M fences, springs, cleats, and wedges for 4x5-in. plain sections, at 49c each.

Shallow frames for supers holding 4¼x4¼-in., \$1.60 per 100.

Shallow frames 5½-in., for Ideal supers holding 4x5 sections, at \$1.60 per 100.

2I 8-frame deep or Ideal supers with slat and T fences, 33c each.

4I 8-frame deep or Ideal super, with sections and foundation starters, 49c.

4S 8-frame shallow supers with beeway sections, 4¼x4¼x1½, and foundation-starters, 49c each.

Danzon baker brood-frames, \$2.25 per 100

2S 8-frame supers with section-holders, separators, followers, and springs, for 4¼-in. beeway sections, 33c each.

2S 10-frame supers with section-holders, separators, followers, and spring, for 4¼-in. beeway sections, 37c each.

2L 10-frame deep supers with slats and I fences, at 37c.

4S 10-frame shallow supers with beeway sections 4¼x4¼x1½, and foundation starters, 54c each.

Dadant uncapping-cans, \$7.55 each.

No 4 Novice extractors, \$7.55 each.

German wax-press, \$11.00 each.

2I 10-frame deep or Ideal supers, with slats and I fences, 37c each.

4M 10-frame supers with hanger-cleats, Danz. section-holders, M fences, springs, cleats, wedges, sections, and foundation starters, 66c each.

10-frame empty Danz. bodies, at 31c each.

Sections, No. 2 plain, 3¼x5x1½ in., \$3.35 per M.

Sections, No. 2 plain, 4x5x1½ in., \$3.25 per M.

Sections, No. 1 plain, 4x5x1½ in., \$4.00 per M.

J5 10-frame Jumbo bodies, with frames, 71c each.

Alley queen and drone trap, 40c each.

12-in., 4 row shipping-cases with 3-in. glass, \$17 per 100.

9¼-in., 4-row shipping-cases with 3-in. glass, at \$15 per 100.

10-in., 2-row shipping-cases with 3-in. glass, at \$9.35 per 100.

6¼-in., 3-row shipping-cases with 3-in. glass, at \$9.80 per 100.

7½-in., 3-row shipping-cases with 3 in. glass, at \$10.70 per 100.

Hubbard section-presses, \$2.00 each.

No. 17 Cowan reversible extractor, \$11.75 each.

A B C of Bee Culture, 1905 edition, by express or freight, 85c each; same by mail, \$1.10.

C 10-frame combination bottom-board with hive-stand, 23c each.

C 8-frame combination bottom-board with hive-stand, 21c each.

Besides the above we offer second-hand hives and supers taken as pay from a bee-keeper who overbought, most of the supers having been set on the hives only a short time. All are well painted, clean, and in good condition.

8 10-frame shallow supers with frames nailed and painted, 40c each.

As5 10-frame one-story hives with body, bottom-boards, covers, and frames, nailed and painted, \$1.10.

In ordering these goods mention Gleanings.

We have a complete line of the Weed New-process comb-foundation machinery, and are prepared to work up wax by the pound, or exchange foundation for beeswax. Our foundation is as good and perfect as money can buy, and rates are reasonable. Write for rates, stating the amount of wax you have. We also buy honey and beeswax in any quantity for cash.

Remember we have the largest and most complete foundation-factory and stock of bee-supplies in the South, and our prompt and careful attention is not excelled anywhere. We have been in the bee and supply business all our lives, and know the needs of the bee-keepers, so why not send your orders to us?

We want to secure a live hustling representative in every county in Texas, where we are not now represented. We prefer a bee-keeper centrally located, and one able to pay cash down for the goods he will order and carry in stock. To those who mean business we offer good inducements.

UDO & MAX TOEPPERWEIN

1322 SOUTH FLORES ST. SAN ANTONIO, TEXAS

PROMPT SHIPMENTS!

If you are needing supplies at present, send us your orders. We have a large stock of **Root Company's Supplies** on hand to meet your requirements. We allow the customary cash discounts for early orders.

Send for forty-page catalog.

John Nebel & Son Sup. Co., High Hill, Mont. Co., Mo.

ORDER NOW—PRICES MAY GO HIGHER

LUMBER IS DEARER, AND LABOR HAS NEVER BEEN SO HIGH

WE offer you **PRICE INSURANCE** on BEE-SUPPLIES. Our plan does not cost you a cent; it may save you dollars. On all orders received before February 1, 1908, we will guarantee present prices (or less) to you, notwithstanding a contemplated advance in prices all along the line of bee-supplies. Shipments may be delayed until you want the goods. You can not lose. Write to-day. We make and keep in stock—Dove tailed Hives, Sections, Section-holders, Separators, Brood-frames, Foundations. Everything for the Bees-

YOUR MONEY BACK if not **PERFECTLY SATISFIED.**

Largest distributing center for raw materials, and best shipping facilities. Write for catalog.

MINNESOTA BEE-KEEPERS' SUPPLY COMPANY
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TO THE BEE - KEEPERS OF CANADA.

WE are pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we do not offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the **QUALITY**. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, The best is cheapest."

E. GRAINGER & COMPANY,
Deer Park,
Toronto, Ontario, Canada.

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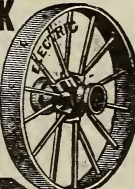
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Low wheels, broad tires. No living man can build a better. Book on "WheelSense" free.

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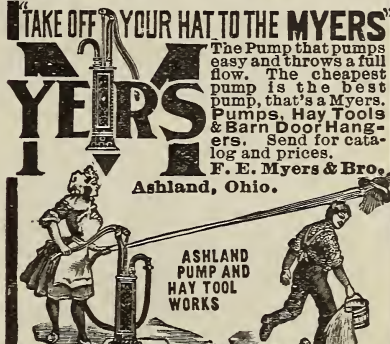

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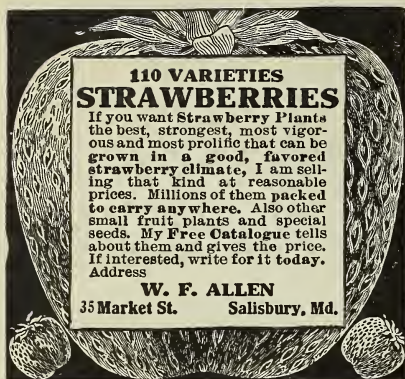
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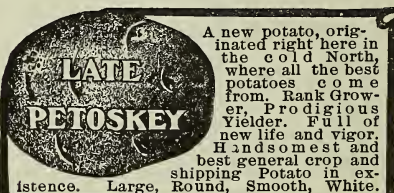
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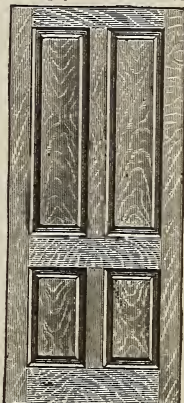
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and bees are an ideal combination for bee-keepers or farmers. Order early and plant a generous quantity of these fruits. The bees pollenize them, making them produce in luxurious abundance, and at the same time increase amount and value of honey.

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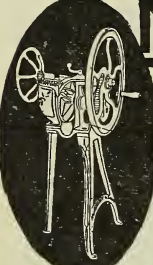
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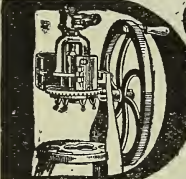
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The HUMPHREY RAPID CLOVER CUTTER cuts more rapidly, more easily and finer than any other. Ask about it.



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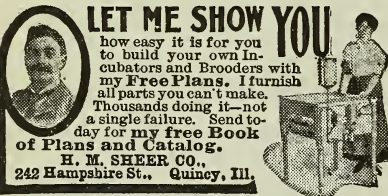
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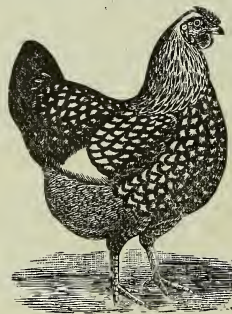


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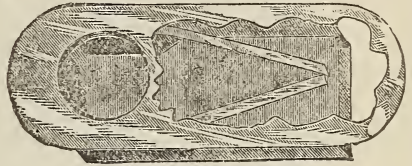
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Root's bee-supplies at factory prices, *Black Diamond Brand Honey*, and *bee-literature*. Catalog and circulars free. GEO. S. GRAFFAM & BRO., Bangor, Maine.

IMPROVED ITALIAN bees and queens ready in May. Circular and testimonials free; second-hand surplus arrangements for 4¼ sections, also folding cartons, cheap if taken soon, or will exchange.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for \$1.00; an extra select breeder for \$2.50. I have had 12 years' experience at queen-breeding. Address

SAMUEL M. ANGEL, Route 1, Evansville, Ind.



To those who may not care to make up a wire cloth cage, as shown on page 33 of this issue, we would state that we are prepared to furnish it in a neat shipping-case, with lid and hasps all complete, for \$12.00.

A line received too late for insertion in their full-page advertisement (see page 45) from Udo and Max Toepperwein requests our Texas subscribers to watch their advertisement in Jan. 15 GLEANINGS for the announcement of an introducing comb-foundation sale.

#### NEW HONEY-JAR.

We have found a new honey-jar which is not only neat in appearance, and seals tight, but is lower in price than any of the jars listed in catalog. We shall have it in ¼-lb. and 1-lb. size. The mold for the 1-lb. size is not yet ready, and we shall not have the jars in stock for some weeks. We have a few of the ¼-lb. size. We can mail a sample for 15 cts. to pay packing and postage.

#### SECOND-HAND FOUNDATION-MILLS.

We have to offer the following second-hand foundation-mills in good condition. We shall be pleased to hear from any one interested. To such we can send a small sample of comb foundation representing the kind of work produced by the particular machine you enquire about.

No. 078.—6x2¼-inch hex. cell thin-super mill, in very good condition. Price \$12.00.

No. 079.—6x2¼-inch hex. cell thin-super mill, in very good condition. Price \$12.00.

No. 088.—6x2¼-inch hex. cell thin-super mill, in good condition. Price \$12.00.

No. 088.—6x2¼-inch hex. cell extra-thin-super mill, in good condition. Price \$12.00.

No. 088.—12x3¼-inch round-cell heavy-brood mill, in fair condition. Price \$12.00.

No. 082.—10x2¼-inch round-cell medium-brood mill, in very good condition. Price \$15.00.

No. 090.—10x2-inch round-cell medium-brood mill, in fine condition. Price \$15.00.

No. 091.—10x2-inch hex. cell, medium or light brood mill, in good condition. Price \$15.00.

#### GERMAN EDITION OF THE A B C OF BEE CULTURE.

We find when we get all our figures together that the production of the A B C in German is a bigger expense than we anticipated, and that \$2.00 each for the paper-bound edition does not cover first cost to us, even if we could sell every copy for cash at the full retail price. Compared with other works of like size and nature of contents the price ought to be \$5.00 per volume; but we know very well that very few would buy at that price. To make the price reasonable, and at the same time bring us somewhere near first cost, we will ask \$2.50 postpaid for the cloth-bound edition and \$2.00 for the paper-bound. When shipped with

other goods by freight or express, 20 cents may be deducted. If any of our readers know of German friends who do not read English readily, and would like to read the A B C in their native tongue secure their order for the book at the above prices, and for 50 cts. additional we will send GLEANINGS one year to your address or any other to which you may prefer to have it sent.

#### EARLY-ORDER CASH DISCOUNT.

We have been obliged to cut down the early-order cash discount below that offered in former years; but it is still sufficiently liberal to pay transportation charges quite a distance, or to pay liberal interest on the money invested in supplies early, and should attract those forehanded people who know pretty well what they want for the coming season.

The following is the schedule of discounts for early cash orders for bee-keepers' supplies, subject to the conditions below:

|                                  |              |
|----------------------------------|--------------|
| For cash sent in January, deduct | 3½ per cent. |
| " " " February, "                | 3 "          |
| " " " March, "                   | 2½ "         |
| " " " April, "                   | 2 "          |

The discount is only for cash sent before the expiration of the months named, and is intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on the following articles exclusively; but where these form no more than about one-tenth of the whole order the early-order discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee-books and papers, labels, and other printed matter, bushel boxes, seeds, and other specialties not listed in our general catalog.

#### Convention Notices.

The Wisconsin State Bee-keepers' convention will be held at the Capitol, Madison, Wis., Feb. 5 and 6. President N. E. France promises several good papers and an abundance of questions. The special features of the Wisconsin convention have always been the friendly and social intercourse among its members, and the profitable and instructive questions and answers of special interest to bee-keepers. Everybody is cordially invited to be with us.

GUS. DITTMER, Secretary.

The New Jersey State Bee-keepers' Association will meet in annual session at the State House, Trenton, N. J., on Saturday, January 11.

#### PROGRAM.

10:00 A. M.—Roll-call and business session.

10:15.—Address by the President.—Bees and blossoms.

10:40.—A Season with the Carniolans.—A. G. Hann, Esq., Pittstown, N. J.

11:20.—Preparing Extracted Honey for Market.—Mr. Harold Horner, Mt. Holly, N. J.

11:45.—Question-box.

1:45 P. M.—What the Government is doing for the Bee-keeper.—F. G. Fox, Ass't Apiarist, Washington, D. C.

2:30.—The future of the Honey Business.—J. H. M. Cook, Esq., Caldwell, N. J.

3:15.—Discussion by Members. The Wintering Problem.

Sec., G. N. WANSER,

Cranford, N. J.

Pres., W. W. CASE,

Frenchtown, N. J.

The following persons have been duly elected officers of the N. B. K. K. A., viz.: Geo. Hilton, president; G. W. York, vice-president; W. Z. Hutchinson, secretary; N. E. France, general manager; Wm. McEvoy, E. W. Alexander, and R. C. Aikin, directors.

R. L. TAYLOR, Chairman Board of Directors.



FOR SALE—It will pay to get our special proposition. A. G. WOODMAN CO., Grand Rapids, Mich.



# SUPPLIES

FOR

# BEE=KEEPERS

Every thing you want; all made by us  
in our own factories--at  
LOWEST PRICES.

The American Bee-keeper (published 17 years), a monthly at 50 cts.  
a year. Sample copy and illustrated catalog and price list free. Address

## W. T. FALCONER MFG. CO.

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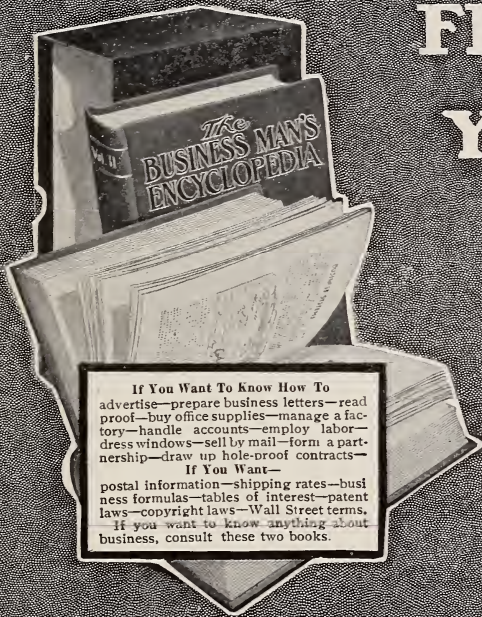
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JAMESTOWN, N. Y.



# These Two Business Brain-Partners

## FREE to You



A set of these books on your desk is almost equivalent to a corps of business experts on your payroll

—to counsel you in every business move

—to give facts, statistics, working data, legal information and past experience on every plan or project

And to give you all this without a penny of cost

No man need go wrong on a legal matter, a sales plan, the selection of employees, machinery, paper stock, printing inks, business supplies, if he has this set of books at hand. It contains, in all, 9,408 useful and important facts on business, covering every branch, department and man in a retail, wholesale, manufacturing, banking or specialty concern. It tells how to ship goods at the lowest rates, how to read proof, write advertising copy, and install an inquiry follow-up.

It tells how to be your own attorney and settle your own legal tangles without paying an attorney's fat fee. It contains condensed correspondence courses on a full baker's dozen of vital business subjects such as window dressing, show-card writing, salesmanship, business law, bookkeeping, systematizing—really the boiled down essence of the best stuff on business ever written—condensed into "meaty" little chapters for your leisure study and ready reference. A complete and simple index.

## SYSTEM

THE MAGAZINE OF BUSINESS

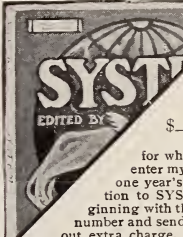
The way to get these two valuable books absolutely FREE is through SYSTEM. SYSTEM stands pre-eminent the monthly Magazine of Business, 260 to 350 pages in every issue of SYSTEM, and you cannot afford to miss a single page of it. SYSTEM goes into the inner offices of the biggest, most successful men and brings forth their costly experience. SYSTEM will show you how to start a new business, how to win trade for it, establish prestige, create profits, minimize wastes, keep down expenses, stop losses. Better, SYSTEM will show you how to accomplish more, make more in your present daily work. SYSTEM has 300,000 readers. It has helped many of them to better salaries, bigger profits, that would have been impossible, undreamed of without SYSTEM. Both proprietor and clerk can learn more and earn more through SYSTEM.

From a leading New York merchant:  
 "System is essential to business success and so is SYSTEM the magazine. No business can succeed without system—no business man can get along without SYSTEM the business magazine."  
 Samuel Brill, of Brill Brothers

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 "The value of SYSTEM can never be accurately estimated. By direct instruction, by timely suggestion it turns many a life and business man into better, more profitable channels."  
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## Special Offer:

Merely send \$2 with the coupon. We will enter your name for a year's subscription to SYSTEM and will send you free of all cost a handsome two-volume set of the Business Man's Encyclopedia bound in substantial red vellum cloth. Or better still include a dollar extra—\$3 in all—and we will bind the volumes in the finest flexible English Morocco—and gold the edges. There is no leather so handsome, so strong, so dignified and so satisfactory as the genuine English Oxford Morocco. This leather will stand the wear and tear of years.



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for which please enter my name for one year's subscription to SYSTEM, beginning with the current number and send me without extra charge, all transportation charges prepaid, a set of the Business Man's Brain Partners bound as per your offer.

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151-153 Wabash Ave. Chicago

**SYSTEM** THE MAGAZINE OF BUSINESS

44-60 East 23d St. New York

In responding to this advertisement mention GLEANINGS IN BEE CULTURE.



# DEEN LOOM



## Flying Shuttle

**W**HY not put your spare moments to work bringing in extra cash? Some people in your town are waiting for some one to make up their rags into carpets, rugs and portieres.

It's genteel, honest work that any man or woman can do and make good profit at it. Just to prove it, here are the names and addresses of fifteen out of hundreds of people who have woven carpets and rugs at a good profit. They use a Deen Loom.

### Good Profits Made At Home

Mrs. C. R. Stover, Bradford, Ohio  
Oma Cooper, Dale, Indiana  
R. P. McGowan, Piedmont, W. Va.  
Mrs. Rob. Record, Seymour, Illinois  
Mrs. Henry Clark, St. Anthony, Iowa  
Mrs. A. L. Clark, Central Square, N. Y.  
Mrs. H. C. Blanahet, New Lathrop, Mich.  
Mrs. T. E. Alley, Sylvan Grove, Kansas  
Mrs. O. E. Albin, Kearney, Nebraska  
Mrs. H. Goebel, West Point, Iowa  
Mrs. J. S. Gilbert, Milton Junction, Wis.  
Mrs. L. E. Foster, Bedford, Indiana  
Mrs. Salanda Gunckel, Osgood, Ohio  
Mrs. D. E. Williams, Pickering, Missouri  
M. H. Vining, Waterloo, Iowa

Remember these are only fifteen of scores and hundreds who at this moment are hustling out work and getting good money for it.

### You Who Read This

Haven't you often wished for a useful employment by which to make money in your spare hours? No doubt you know of people who would gladly pay you for weaving their rags into carpets and rugs.

It's not only the poorer people that have hand-woven carpets and rugs on their floors, but well-to-do people of city, village and country-side appreciate the handsome and useful products of home-weavers.

By canvassing among your friends you can work up a good business. Profitable, too. Besides, it's done at home with the children, where you can have an eye on everything in house and yard.

### It's Not Hard Work

Weaving with a Deen Loom is soon learned. The Loom itself is a simple affair, easily handled, and soon understood. May Vittum, Barclay, Kansas, says:

"I can weave almost twice as much as I could with the old loom. I would not go back to the old one for anything. The new one is faster, easier, and does the best work."

Having a steel frame well-braced, and rigid, it resists the shock and stroke of the shuttle mechanism, remaining solid for years without repairs.

It will accomodate any size rug or carpet demanded.

### What May Be Woven

Any design can be made in any number of colors that taste and fancy may dictate. You can weave rugs, hammocks, all kinds of hand-weaves, carpets, portieres, etc. The materials to use are common carpet warp which can be purchased of any dry goods store; carpet rags, old clothes of any kind, old ingrain and brussels carpets, blankets, or nearly any kind of fabric. Your customers furnish you all material; you do the weaving and get good pay for it.

### A Few Prominent Reasons for Buying

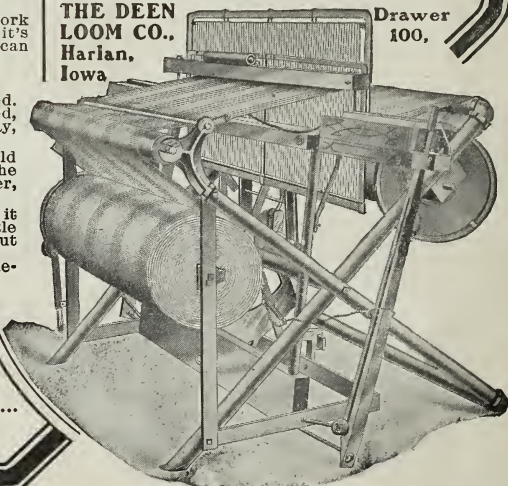
- 1.—You can make from \$2 to \$3 a day if you weave 8 hours daily.
- 2.—You can make from \$4 to \$10 a week using only part of your time—say evenings after work and an hour in the morning.
- 3.—We help you personally by letter if you wish. But this is seldom necessary, because we send you simple, detailed instructions with pictures of the loom and its parts. This book makes everything plain. You have no real difficulty in handling the loom.
- 4.—The Fly-Shuttle is easily filled, quick to handle, doesn't bother.
- 5.—The Winding Mechanism and Feed-Governor are new improvements. The latter keeps the warp and weft mechanism within control. It saves much material and prevents hours of thrown-away time used by old-style looms.
- 6.—It takes up much less room than many other styles. It requires a room but 10 feet square for a complete weaving shop.
- 7.—We send you everything with the Loom. You can go right to weaving as soon as you get warp and rags.

### You Needn't Pay All At Once

Pay something down. As Loom brings in profits send balance by easy installments. Fill in the coupon and mail. We'll send our free catalog and a letter about our easy-pay plan.

**THE DEEN  
LOOM CO.,  
Harlan,  
Iowa**

Drawer  
100,



### COUPON

Deen Loom Co.:- Date.....19....

Please send me your free catalog and detailed explanation of your "Easy Pay Plan" of selling your Deen Loom.

Name.....

Address.....

Town.....State.....

